

Labour market change

Employment effects of innovation support



When citing this report, please use the following wording:

Eurofound (2018), *Employment effects of innovation support*, Publications Office of the European Union, Luxembourg.

Author: Valentina Patrini

Research managers: Valentina Patrini and Irene Mandl

Eurofound project: Study on the employment effects of public or social partner-based innovation support measures

Luxembourg: Publications Office of the European Union

This report and any associated materials are available online at <http://eurofound.link/ef18022>

© European Foundation for the Improvement of Living and Working Conditions, 2018

Reproduction is authorised provided the source is acknowledged.

For any use or reproduction of photos or other material that is not under the Eurofound copyright, permission must be sought directly from the copyright holders.

Cover image: © Gorodenkoff/Shutterstock

Other images: p. 1 © Matej Kastelic/Shutterstock; p. 2 © Agnes Kantaruk/Shutterstock;
p. 5 © Pressmaster/Shutterstock; p. 17 © Alpa Prod/Shutterstock;
p. 20 © Thomas Bethge/Shutterstock

Any queries on copyright must be addressed in writing to: copyright@eurofound.europa.eu

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is a tripartite European Union Agency, whose role is to provide knowledge in the area of social, employment and work-related policies. Eurofound was established in 1975 by Council Regulation (EEC) No. 1365/75 to contribute to the planning and design of better living and working conditions in Europe.

Print:	ISBN: 978-92-897-1776-2	ISSN: 2599-8110	doi:10.2806/52482	TJ-AR-18-004-EN-C
PDF:	ISBN: 978-92-897-1774-8	ISSN: 2599-8153	doi:10.2806/77342	TJ-AR-18-004-EN-N

European Foundation for the Improvement of Living and Working Conditions

Telephone: (+353 1) 204 31 00

Email: information@eurofound.europa.eu

Web: www.eurofound.europa.eu

Europe Direct is a service to help you find answers to your questions about the European Union.

Freephone number*: 00 800 6 7 8 9 10 11

*Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.



Introduction

Innovation is crucial for the European Union's competitiveness, for economic growth, for well-functioning labour markets, and for providing solutions to economic and social challenges – even more so when considering the digital transformation of businesses and societies. It stands to reason, then, that the EU is placing a strong policy focus on encouraging innovation, research and development (R&D), and the successful conversion of research results into innovative solutions for the market.

Employment is generally acknowledged to be related to innovation. Nonetheless, the nature of this link is not straightforward and differs depending on a number of factors, including the type of innovation and the time horizon considered. Product innovation, for instance, can increase demand, which is likely to stimulate employment. Process innovation, on the other hand, often achieves productivity increases by saving on labour, causing job losses. The overall effect of innovation, though, is unclear, especially in the short term. In the longer term, innovation and job creation tend to go hand in hand (OECD, 2010).

The EU acknowledges the opportunities and threats that innovation implies for employment. Yet, there is often a lack of coordination across its policies on innovation, employment and working conditions. The same is true of Member States. Isolated policy thinking creates the risk that the employment dimension of innovation is undervalued or overlooked in the overall innovation policy cycle, from conception to implementation to evaluation.

Looking at different policy interventions and at evidence on their effectiveness enables their actual contribution to employment to be documented. To this end, Eurofound conducted a study of 15 initiatives introduced in 10 Member States by governments in a bid to stimulate innovation in enterprises. This policy brief summarises the findings. Its aim is to provide insights into different types of innovation-support measures operating in the EU and the impact they have on employment – meaning job creation, of course, but other aspects too, such as the skill set of the workforce and the employment of specific groups. The findings from this study can serve as useful lessons for effective public interventions aimed at supporting innovation and employment.



Policy context

A favourable policy framework is a critical precondition to developing the innovation capacity of the EU and its Member States. Innovation support for companies has been prominent in economic policy over the last 30 years and has evolved substantially in this period – from the standalone measures favoured initially to increasingly integrated and strategic initiatives. As a result, the EU has a rich and complex innovation-support system encompassing measures targeted at the overall business environment and institutional framework, involving multidisciplinary approaches, multistakeholder cooperation in design and implementation, and deployment of smart specialisation strategies.

In this evolution, though, innovation policy has not developed to take account of the employment dimension explicitly. If in practice innovation and employment are related, policymaking in these two key areas seems to happen mainly in parallel. Consequently, in the design of the main European interventions promoting innovation, employment is not a main focus.

Europe 2020, the EU strategy for growth and jobs for the current decade, seeks to support Europe's transformation into a 'smart,

sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion'. It is the key framework for policymaking at European level, alongside its accompanying flagship initiatives, such as 'Innovation Union' and 'An agenda for new skills and jobs'. The former stresses the link between Europe's competitiveness and the capacity to create jobs through a push to innovation in products, services, business and social processes and models, while the latter highlights the need for a skilled workforce to achieve a competitive, innovative and sustainable economy. Nonetheless, neither of these initiatives nor Europe 2020 itself provides operational guidance on how to practically support the connection between innovation, employment growth and better working conditions.

Horizon 2020, the EU programme for funding research and innovation, has as one of its main goals the generation of a high-employment economy, where research and innovation are stressed as means of creating jobs, enhancing prosperity and improving quality of life. Nonetheless, the articulation of this main goal into specific objectives does not directly address aspects such as employment and high-quality job creation.

The role of innovation as a key investment for growth and jobs seems to be more prominent in the Common Strategic Framework for the European Structural and Investment Funds (ESIF), whose thematic objectives for the 2014–2020 programming period include ‘Strengthening research, technological development and innovation’ and ‘Promoting sustainable and quality employment and supporting labour mobility’ as well as ‘Investing in education, training and vocational

training for skills and lifelong learning’. The European Regional Development Fund (ERDF) and the European Social Fund (ESF), especially, envisage specific elements connecting the promotion of innovation with the creation and preservation of employment. Yet, this opportunity for alignment between the two is often not translated into policymaking processes, which strongly depend on national practices and local circumstances.

Key findings

- Public organisations in EU countries provide a variety of measures at different levels to stimulate innovation: support for individual enterprises, support for collaboration between industry and research institutions, and strategic measures contributing to generate the framework conditions for enterprises to innovate and flourish.
- The positive impact of innovation-support measures on employment is usually regarded as a by-product of policy by policymakers. Most innovation policy does not explicitly include employment creation as an objective, nor any other employment-related outcomes.
- Nevertheless, the most common employment effect of the innovation-support measures studied is job creation. This is often monitored in formal evaluations as it is seen as an indicator of economic growth, which is typically an objective of such measures.
- Next to employment growth, better-quality jobs for highly skilled staff is one of the main results of innovation support. The impact on the job quality of other employees in a company is less clear due to the lack of evidence.
- Developing workers' skills and competences is often considered as part of the mechanism to achieve innovation goals rather than an objective in itself. This, therefore, receives limited attention in policy design, implementation and assessments. Neglecting this dimension of innovation may hinder the effectiveness of policy – if, for instance, the development or implementation of an innovation is undermined by lack of skills in a company's workforce.
- Aspects of employment such as working conditions, wages, work-life balance, certifiable skills development and the sustainability of the employment effects are often disregarded in innovation policy.
- The employment potential of innovation interventions is widely untapped, and there is much room for improvement in terms of more integrated policymaking and implementation.
- Each country's innovativeness influences the innovation support provided and its employment effects. Innovative countries tend to promote measures that have visible employment effects in the short term. Less innovative countries often promote measures aimed at strengthening the innovation landscape as a whole, with employment effects manifested over a longer time span.
- Unemployment levels also influence innovation policy: countries with high unemployment typically promote innovation contributing to create jobs – for instance in R&D – while countries with low unemployment invest more in upgrading skills and reskilling to address the lack of specialised profiles in innovative fields.
- Despite different evaluation cultures in Member States, a common feature is that formal evaluations of innovation-support measures rarely assess aspects related to employment.



Exploring the evidence

Background to the study

This policy brief explores how policies designed to promote innovation in businesses can contribute to employment. It starts with an overview of the innovation cultures of the EU Member States, as these influence the types of measures adopted and the impact they have on employment. Based on a review of the literature, the brief outlines the different levels at which innovation-support measures operate within the economic structure and describes the types of measures within each level.

The main focus, however, is on 15 innovation-support measures for enterprises promoted by public organisations in 10 EU Member States. The analysis of the measures looked for employment effects from a broad perspective, including:

- job creation: direct and indirect creation of new jobs and retention of existing jobs, in the short and long terms
- enhancement of knowledge, skills and capacities: changes in employee know-how and skills and subsequent changes in companies' capacity
- knowledge transfer between companies and other partners

- working conditions: changes in the workplace, including work intensity and hours worked, employee roles and responsibilities, and gender balance
- welfare: outcomes relevant to employees' health and well-being and economic and social standing

Only innovation-support measures with a good potential to contribute to employment and for which evidence of their effectiveness was available, mainly in the form of evaluations, were selected.

As an entry point for identifying measures, the study used the definition of innovation included in the OECD Glossary of Statistical Terms (2005): 'the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations'. The research did not focus on social innovation, which has a social orientation in both its goals and its methods and which is therefore more explicitly connected with aspects of employment. Nevertheless, social innovation was taken into account when it was fostered alongside other types of innovation.

The evidence gathered relates mainly to product and process innovation, with much less information available on marketing and organisational innovation. This could imply that product and process innovation-support measures are more common than measures promoting marketing and organisational innovation (which are potentially more difficult to define and measure) or that the former inherently have greater employment impacts. Or it could be that evidence on employment effects is sparse because the human dimension in innovation is often neglected in the design and evaluations of measures.

Innovation culture, employment levels and policy orientation

Innovation policies and the types of support made available to enterprises are shaped by the country from which they originate: its innovativeness, the severity of unemployment, the institutional setting and the policy orientation. The EU Member States differ widely in terms of their innovativeness. The European Innovation Scoreboard classifies them into four performance groups, based on a number of indicators encompassing framework conditions, investment, innovation activities and impacts. In 2017, innovation leaders – countries with an innovation performance well above the EU average – included Denmark, Germany, the Netherlands, Sweden and the United Kingdom. Austria and France are examples of strong innovators, whose performance is above or close to the EU average. Countries such as Estonia, Italy and Poland, with a lower performance than the EU average, are moderate innovators. And modest

innovators – Bulgaria and Romania – perform below the EU average.

For moderate innovators, key priorities for policy instruments are building an effective innovation-support infrastructure, ensuring access to finance and supporting the creation of an innovation culture. The employment effects of such interventions will tend to happen in the longer run, as a second-order impact of broader measures. In more innovative countries (leaders and strong innovators), where these bases are already covered, innovation support is mainly oriented towards enhancing existing structures, reaching a broader enterprise community and sustaining innovation interventions. Here, the results can be expected to be more direct and happen in a shorter time. Support also evolves towards more advanced, radical innovations and broader innovation types, beyond process and product innovation. Focusing on demand-side factors and organisational and marketing innovation, these more nuanced approaches can contribute to ensure a better development of the human dimension of innovation.

The employment orientation of instruments is also influenced by national policy objectives related to unemployment. High unemployment justifies policies promoting economic growth and, therefore, can be expected to have a more direct contribution to job creation, for instance in R&D. On the other hand, countries with more moderate unemployment tend to focus innovation support on the development of specialised skills and competences (reskilling and skills upgrading), oriented especially to those economic sectors experiencing labour shortages. They also take account of broader social impacts, looking, for instance, at tackling gender imbalances.

Targeting innovation and employment together: an exception

The Austrian *WAFF Innovation and Employment Subsidy* explicitly combines innovation support with employment creation, retention and quality improvement. It assists each participating company with the implementation of an innovation project, with a target to create at least one additional job per project supported for the duration of the funding period.

Employment levels shaping innovation policy

Employment is high in Germany, and innovation policy addresses strengthening specific aspects of economic activity rather than job creation. The *Enterprise value: People* programme aims to improve skills levels and promote a new work culture in small and medium-sized enterprises (SMEs) to support innovation and competitiveness. It is a response to concerns about skilled workers moving from SMEs to larger firms that offer more attractive working conditions, which could potentially cause labour shortages in smaller firms. Such labour shortages coincide with low unemployment rates, generating a competitive labour market.

The Italian *Smart&Start* measure focuses on the south of Italy, where even well-qualified young people have difficulties finding a job. This initiative endeavours to create opportunities for entrepreneurs, including young graduates, who are establishing innovative businesses, especially those that can exploit the results of R&D.

Nonetheless, regardless of the innovation performance of a country, it is generally the case that the governmental bodies or departments responsible for innovation measures are different from those responsible for employment measures, with limited coordination between the two. Moreover, in the case of policies focusing on innovation specifically or on innovation in combination with economic growth, employment is generally seen as a welcome by-product or, at best, a parallel objective.

Three policy levels

Depending on their scope, objectives, target groups and strategic orientation, policy interventions operate on one of three main levels:

- enterprise
- network
- strategy

Interventions at these levels also have different aims and contributions in terms of employment. This section describes the types of interventions at each level, matching each of the support measures selected for this study to each type, and outlines what they do to foster innovation.

Enterprise level

Enterprise-level measures offer assistance to individual companies to innovate. They comprise standalone and capacity-building measures.

Standalone measures

- **Tax credits** for research and innovation, enabling businesses to deduct part of their R&D spending from their tax liability

Research tax credit	France	Aims to promote an innovation-friendly business environment and to increase private sector innovation by reducing tax liability, and offers beneficial conditions for enterprises employing recent graduates
WBSO R&D tax credit	Netherlands	Targets employment directly by offering reductions in payroll taxes

- **Encouraging entrepreneurship** through grants, prizes, awards and so on

WAFF Innovation and Employment Subsidy	Austria	Funds SMEs for staff training and consultancy, and to pay for 'innovation assistants' needed to develop the projects
--	---------	--

- **Innovation vouchers** to purchase support services from different providers

Innovation vouchers	Estonia	Small instrument to assist initial cooperation with a research partner but with potential to change attitudes of companies
---------------------	---------	--

- **R&D programmes** supporting all stages of the innovation cycle, including the commercial exploitation of research results

Coordinated capacity-building measures

- **Creation and development of innovative start-ups**

Smart&Start	Italy	Aims to support the set-up and development of very young start-ups through funding
-------------	-------	--

- **Business incubators:** organisations that assist enterprises to start up and develop

Investment incubators	Poland	Offers advice, business development support and access to finance at the various development stages of a business venture, with the aim of increasing the number of innovative businesses
-----------------------	--------	---

- **Business advice and direct support**

Growth Houses	Denmark	Collaborates with enterprises and employers with evident growth potential, with the aim of addressing weaknesses in businesses' capabilities
Enterprise Value: People	Germany	Subsidises SMEs to carry out consultations to improve internal processes, with the ultimate goal of retaining skilled personnel

In practice

The enterprise-level measures operate by:

- creating beneficial conditions, especially financial conditions, to enable enterprises to hire skilled personnel and graduates
- supporting the development of skills and competences through staff training and consultancy
- providing tools for companies to enhance workplace motivation with the aim of retaining skilled personnel
- creating an entrepreneurial culture through awareness-raising and coaching

Network level

Network-level measures support the interaction of businesses with partners such as research institutions and public authorities.

- **Promoting structured networking and cooperation** between industry and research institutions

Knowledge Transfer Partnerships

United Kingdom

Mutually beneficial mobility scheme, involving an associate from one type of organisation (usually a research institution) working in another with a need for an innovation input (a business, for example)

- **Building innovation, knowledge or competitiveness infrastructures, platforms and centres** to act as vehicles for joint research by industry and research institutions

Laura Bassi Centres of Expertise

Austria

Collaborations between businesses, start-ups, universities and public research laboratories in the same geographical area regarding R&D projects, training, equipment and physical premises, and financing

Competitiveness centres

France

Subsidises SMEs to carry out consultations to improve internal processes, with the ultimate goal of retaining skilled personnel

- **Promoting industry clusters**, which support the economic and commercial development of groups of companies that share common interests and needs

Danish Cluster Promotion

Denmark

Helps enterprises to speed up their innovation processes and to achieve commercial success by working in clusters; target groups are enterprises and cluster managers

In practice

Network-level measures typically work by:

- supporting cooperation between different actors, promoting behavioural change and developing processes within and between organisations and partners
- facilitating exchanges of knowledge as well as personnel to support mutual learning
- creating and facilitating access to specific collaborations in R&D activities, providing support for financing, training, and equipment and facilities
- boosting the intensity and speed of innovation processes

Strategic level

Strategic-level measures aim to create the economic and business environment for individual enterprises to innovate and thrive.

- **Awareness-raising**, motivating companies to become more innovative
- **Promoting open innovation**, encompassing broader involvement of different types of actors, such as consumers and civil society, in innovation
- **Demand-side procurement of innovation**, where public authorities design tenders for goods or services that stimulate innovation

Small Business Research Initiative

United Kingdom

Funds contracts through open procurement processes, involving the development of potential solutions (products and/or services) to public sector problems

- **Measures from other policy areas or strategies** – such as in the social or urban development fields – that also promote innovation

Startup in residence Amsterdam

Netherlands

Demand-side (public sector procurement) stimulation and training to revitalise the city and its buying processes, while supporting the entrepreneurial culture and addressing social challenges

- **Smart specialisation**, where regions focus on the sectors and areas in which they enjoy a competitive advantage and foster cooperation between stakeholders

Winter Sports Research Centre

Sweden

R&D centre for winter sports, focused on education and teaching, research and innovation and testing, involving key actors in the territory

In practice

Strategic measures foster innovation by:

- cultivating an environment that boosts innovation and entrepreneurship
- creating a supportive environment for particular types of companies, such as start-ups
- tackling obstacles in the public sector through strategic policy direction and the adoption of open-procurement practices

Employment-related outcomes

The key employment-related outcomes of the measures examined in this study are as follows:

- job creation in general
- employment of specific (more vulnerable) groups
- employment of highly skilled staff
- development of skills and competences within the company and broader impacts on the existing workforce
- improvement of workplace practices
- sustained employment effects

Table 1: Main employment effects of the innovation-support measures

Measure	Country	Job creation	Employment of specific groups	Employment of high-skilled staff	Enhanced skills and competences	Improved workplace practices	Sustained effects
Enterprise level							
WAFF Innovation and Employment Subsidy	Austria	√	√				
Growth Houses	Denmark	√				√	
Innovation vouchers	Estonia	√			√	√	√
Research tax credit	France	√		√			
Enterprise Value: People	Germany			√	√	√	
Smart&Start	Italy	√	√	√			
Investment incubators	Poland	√					√
WBSO R&D tax credit	Netherlands	√		√	√	√	√
Network level							
Laura Bassi Centres of Expertise	Austria		√			√	
Danish Cluster Promotion	Denmark	√					√
Competitiveness centres	France	√					
Knowledge Transfer Partnerships	UK			√		√	√
Strategic level							
Winter Sports Research Centre	Sweden			√	√		√
Startup in residence Amsterdam	Netherlands	√	√				√
Small Business Research Initiative	UK	√					√

Source: Eurofound

Job creation

The most common employment-related outcome of the measures analysed is job creation – registered in 11 out of the 15 cases. It is also the aspect of employment most often included as an objective and, therefore, more regularly monitored. A direct impact on employment is one of the indicators of economic growth, which is typically an objective of innovation-support measures.

Employment of specific groups

Some measures (4 out of 15) target subgroups within the population, with the aim of supporting their participation and advancement in the workplace. These initiatives most commonly focus on promoting the employment of women or certain age groups such as older employees or young graduates, and data on these groups are often available. Other sociodemographic groups, such as those distinguished by ethnicity, sexual orientation, social status or disabilities, seem to be neglected, and related data are extremely scarce.

Recruitment of high-skilled staff

The promotion of specific staff profiles – namely specialised and highly skilled employees, usually researchers – was documented in more than one-third of the measures analysed. These often entail knowledge transfer between different institutions, mostly between enterprises and research organisations. Typically, the knowledge transfer involves the exchange of staff for a certain period or the direct recruitment of researchers from research institutions into companies. Given that business and academia have different practices

and objectives, supporting exchanges and building bridges between education and the labour market helps to address these cultural discrepancies.

The main effect of this is to create a highly skilled workforce and to absorb workers with R&D profiles, such as academics and PhD graduates, into the labour market. This confirms that the job creation associated with innovation promotion is mainly related to the generation of high-quality jobs. The evidence from the evaluation of measures showed no major displacement of existing jobs. Rather, several of the measures result in the net creation of high-quality jobs.

Development of skills and competences

Documented evidence of improvement in the skills and competences of the workforce was available for only 4 of the 15 measures analysed. Skills development is often regarded as part of the mechanism to achieve greater innovation, rather than representing an explicit objective in itself, despite the potential contribution this may have to the capacity and productivity of an economy in the long term. Once again, the way the objectives of programmes are designed has significant consequences for the analysis of their impact on the workforce. Thus, several measures investing in skills development to deliver their main objectives fail to monitor or assess this aspect.

Innovation-support can have effects on the existing workforce of a company. Those identified in the measures analysed include staff opportunities to learn from the highly skilled recruits hired under an innovation programme, the allocation of funding for the

Incubator that creates new jobs

The Polish *Investment incubators* measure, which provides grants to incubators, did not require either the incubators or the start-ups to generate a specific number of new jobs. It was assumed nonetheless that new jobs would appear in line with the development of the start-ups supported. The evaluation included the indicator ‘number of new job places created within start-ups benefiting from equity investment’, showing overachievement with respect to the original targets.

development of existing staff, and the improvement of the skills and competences of the managers. These factors suggest broader effects on the business environment and organisational learning, contributing to the development of a stronger entrepreneurial culture among managers and a pro-innovation attitude among employees. Nonetheless, although there is an assumption of a spill-over or leavening effect whereby the existing workforce learns from newly recruited skilled workers, such practices are rare and they are often disregarded in the measure's design and barely considered in formal assessments of measures.

There is also evidence that failure to take account of the human resource factor in innovation can reduce the overall effectiveness of an initiative. This was observed in one of the analysed measures, where the implementation of an innovation was not viable because of a shortage of staff with the necessary set of skills.

Workplace improvements

More than a third of the measures analysed show some evidence of improvements in workplace practices and working conditions. Organisational learning and cultural change is one of them, often consisting of new approaches to research management, the development of human resources policies and better organisational management, which in turn contribute to creating a more favourable working milieu for knowledge workers.

These enhancements of businesses' capabilities and changes in the company innovation culture and openness also contribute to improve working conditions by ensuring better job quality and more interesting jobs. Additional expenditures on

wages allow for more hours dedicated to R&D by existing staff, recruitment of additional staff for innovation activities, higher remuneration of R&D workers, upgraded functional or skill levels of staff, or a mix of these.

These effects at an organisational level are clearly positive and represent favourable conditions for the sustainability of the overall employment effects over time. Disregarding this dimension, as the measures' objectives often do, misses part of the broader picture in terms of the overall impacts of the measures and their potential effects over the longer term.

Sustained effects

Most of the interventions analysed show some hints that the employment outcomes are sustainable and present results that exceed their own targets. This evidence on sustainability, however, is scattered and mainly relies on predictions rather than on a systematic monitoring of the actual effects over the long term (for instance, after measures have come to an end). Interestingly, this evidence is clearer and more striking for the measures at a strategic level.

The continuation of the measures over time depends on how rooted they are in the policy practice and the results achieved, as well as the existing financial framework. Especially when they depend on specific programmes that are limited in time, such as those financed through European funds, measures risk being terminated after the initial funding comes to an end, unless other sources of funding are made available. Some measures incorporate sustainability features, such as the possibility to generate profit from investments, in order to become financially self-sufficient beyond the specific programme duration; this is

Supporting women in research

The Austrian *Laura Bassi Centres of Expertise* support the creation of centres of innovation and knowledge, where scientists work with SMEs and large firms, universities and other organisations to research innovative ideas. The centres are committed to equal opportunities in scientific and technical work environments and promote female research excellence by supporting female leaders.

particularly the case for financial instruments. In general, more accurate evidence on longer-term effects would strengthen the case for a continuation of funding and hence longer-term sustainability.

The likely sustainability of the effects is mainly expressed in terms of increased employability of the staff or, more generally, an improved and more innovative business environment. This enhanced innovativeness reinforces the companies' willingness to invest in R&D, not only in financial terms but also through a strengthened cooperation with the science community, setting the basis for long-term growth.

Implementation

In order to understand how they are conducive to employment outcomes, it is worth looking in a little more detail at how these measures are implemented, in terms of how they operate and the organisations and workers they target.

Target groups

The initiatives analysed in this study address a variety of target groups – often SMEs, but also other types of enterprises as well the workforce itself and organisations providing innovation assistance.

Measures directed at individual enterprises mainly target private sector SMEs. Most are aimed at already established enterprises, but some target start-ups, either created by young people, operating in specific sectors, or as part of a more general business environment support. Employment effects in start-ups tend to be larger in relative terms (the number of

jobs created compared to the number of existing staff in the company), especially in the short run, but not necessarily in absolute terms (the total number of jobs created). Moreover, assessment of the longer-term impacts should take into account the relatively high failure rate among start-up enterprises. This highlights the importance of considering the employment effects over a sufficiently long timespan.

Measures that encourage interaction between enterprises and other organisations and the more strategic measures generally make provision for the involvement of larger enterprises, knowledge institutions and public authorities. When measures target organisations that can provide support to SMEs (such as incubators and clusters), these support organisations are the indirect or ultimate beneficiaries, and employment effects in those companies can be expected over a longer period as compared to measures targeting SMEs directly.

Funding and administration

Overall, the analysis of the selected measures indicates a trend away from the provision of general financial grants for companies and towards more targeted interventions – either in the form of financial support aimed at specific types of innovation, companies or groups, or in the form of broader services not necessarily incorporating a funding component.

The measures are typically supported by public funds and delivered by public agencies initially, but in several cases they are delegated to other organisations for day-to-day implementation. The delivery process to the final beneficiaries can also involve a range of additional actors, such as private consultants.

Supporting learning within companies

In Denmark, *Growth Houses* were established to collaborate with enterprises and employers that have evident growth potential and ambition, integrating innovation support into the broader goal of encouraging business growth. They also promote awareness-raising, offer specialised sectoral support and help companies to address specific business issues – for instance, through a dedicated 'early-warning' programme to assist enterprises that are experiencing problems.

The *Knowledge Transfer Partnership* in the UK brings external expertise into companies through a mobility scheme. Participating companies host a graduate from a research institution, who contributes their knowledge to develop the company's innovation capacity.

Learning: A key vector

All the measures analysed foster behavioural change in enterprises, enhancing their innovation culture and processes – through simple forms of support such as innovation vouchers, but even more so through guidance and advice. Most of the measures promote mechanisms that improve the skills and competences of the beneficiary enterprises, their management and their workforce. Interventions in many cases involve the identification of weaknesses in management and other practices within the business and provide assistance to address them, mainly in terms of knowledge creation and learning, supported through tailored advice or training.

In the case of measures that support the building of relationships with partners, the learning opportunities offered are often quite informal, arising through contacts and collaboration with other companies, universities or other partners in research and innovation projects. In other cases, and especially in measures providing support at the enterprise level, learning is more formally structured, through training courses or the

involvement of external consultants and advisors.

Learning also occurs indirectly when companies are supported to identify new opportunities and to build their longer-term capacity, thus increasing their effectiveness and efficiency.

Similarly, the awarding authorities promoting innovation measures also need openness, continuous learning across the whole economy and management capacities to set the bases for effective strategic interventions. Learning and awareness-raising are therefore important also at this level.

Initiatives focusing on research collaboration not only foster mutual learning, but also help to improve company practices, strengthen cooperation between actors and increase interaction with the existing innovation landscape.

When it comes to strategic measures, the promotion of new framework conditions generates knowledge and learning opportunities in terms of institutional and organisational practices and culture.

Supporting collaboration and mutual learning

The French *Competitiveness centres* actively encourage collaborations between businesses, start-ups, universities and public research laboratories based in the same geographical area. These include joint R&D projects, training, financing opportunities, and providing equipment and physical premises.

The Swedish *Winter Sports Research Centre* is an example of bottom-up smart specialisation. It started with the establishment of a competence centre that has subsequently expanded within the region. Its purpose is to encourage research and innovation collaboration in the area of winter sports between universities, businesses and public actors based on local strengths.

Supporting framework conditions and innovation environments

The Polish *Investment incubators* aim to increase the number of innovative businesses in the Polish economy and tackle the lack of institutional arrangements supporting start-ups.

The Dutch *Startup in Residence Amsterdam* measure seeks to open up and innovate in public procurement. Working with start-ups, it intends to meet societal challenges for which market solutions have not been developed. This helps to revitalise the city's governing authority and its buying processes, while supporting the entrepreneurial culture.

Evaluation and monitoring

As already noted, the relationship between innovation and employment in the measures analysed is often indirect. Innovation policies often favour measures that are designed to promote new technologies and processes rather than employment, workforce competences or the human factor in innovation. As a result, monitoring and evaluation of these measures tend to concentrate on whether they meet their targets and formal objectives, and often do not take employment or other effects into account. This is typically the case when, as often happens, evaluations are commissioned by the implementing or managing agency, whose main policy remit is innovation and economic growth.

In addition, evaluations rarely consider the complexity of the overall context in which the measure is implemented or sufficiently explore the mechanisms put in place to deliver the expected results, which can include changes in the business environment in terms of employment relationships and development of skills and competences.

The nature of the assessment evidence varies considerably across measures and also depends on differences in the evaluation culture of the Member States. Evaluations are conducted systematically in the case of EU-funded programmes, but the assessments tend to offer a broader programme overview and rarely focus on individual measures.

Still, even when rigorous evaluations are carried out, their methodological design and purposes can have a significant impact on the type of information collected. For instance, ongoing evaluations will tend to focus more on processes than on effectiveness, unlike ex-post evaluations, and allow for limited learning in terms of employment effects.

The main methodological and data collection tools in the evaluations considered are:

- the analysis of monitoring data
- interviews with managing authorities, beneficiaries, end users and so on
- survey questionnaires completed by direct and indirect beneficiaries
- econometric analyses

Monitoring data can provide relevant contextual information on the performance of participating companies and the outputs produced with the help of the measure. Differences in evaluation culture may also apply to the collection and analysis of these data. Measures implemented under EU programmes typically follow the European Commission's guidelines on data monitoring; however, in these cases, measuring employment-related outcomes is not sophisticated.

Of all the measures analysed for this study, those assessing employment-related outcomes evaluate them in terms of:

- new direct or indirect jobs created, either in individual beneficiary firms or (if applicable) in organisations supporting individual firms
- jobs retained in individual firms
- skills development among staff in beneficiary firms, often in the form of qualitative assessments
- changes in individual firm research and innovation investment or turnover, which are assumed to contribute to employment creation

Much less evidence is available as regards wider working conditions, wages, work-life balance, skills development in terms of concrete certifiable skills or sustainability of the employment created. Moreover, most evidence does not provide data beyond the duration of the measure in question – such as short- and long-term employment. Also, when employment sustainability is considered, the assessments rely on self-reported data from the beneficiary companies – therefore, with potential issues around response bias.



Policy pointers

The findings on innovation-support measures presented in this document suggest a number of considerations of policy relevance for innovation interventions and the contribution they could potentially make to employment.

Explicitly include employment goals in innovation policy

The potential for innovation support to have a positive impact on employment is too often neglected by policymakers. Innovation policymaking needs to develop a more holistic approach, acknowledging that the interaction between innovation and employment is a major input into the generation of economic growth. Innovation measures should build in an employment dimension as part of their design rather than as an add-on or implicit feature. This should be incorporated through explicit objectives relating to job creation, clearly, but to other dimensions too, including:

- working conditions
- inclusion of specific target or disadvantaged groups, for instance in terms of gender balance, age, equal opportunities and inclusive work practices

- skills development, competences, knowledge sharing and learning
- quality of employment regarding the types of contracts offered to the (new) staff involved in innovation activities
- aspects of job quality for both the existing and the new workforce that might be affected by innovation processes (such as work intensity, working time and work organisation)

These innovation practices should also aim at ensuring sustainability, with employment effects that persist beyond the specific period of measure implementation. The short- and longer-term outcomes should be tracked, even after the finalisation of the measure.

Pay more attention to the human factor in innovation

Greater attention to the human dimension of innovation is needed, encompassing not only the knowledge input into product and process innovation, but also the necessity to develop skills and competences to further develop and implement ideas and sustain commercial success.

A higher profile for the human dimension could involve a greater emphasis on organisational, marketing and social innovation within policy measures. Where public procurement is used as a tool to stimulate growth and innovation from the demand side, for instance, it should also focus on the role of innovation in providing socially relevant solutions – such as supporting socially useful, innovative start-ups developing tailor-made responses to meet public purchasing requirements. This applies especially in countries where the innovation system is advanced.

Extend the reach of measures

At an ecosystem level, the interaction of enterprises and their staff with other enterprises and different players in the innovation field should be encouraged further, in order to support knowledge exchange, organisational learning and the creation of a stronger entrepreneurial culture. Measures that strengthen cooperation between business and research institutions, and that involve the broader society in innovation, contribute to setting the basis for company growth and sustainability in the longer term.

Similarly, innovation processes should involve a broader range of actors within the target enterprises, going beyond the management and employees directly involved in delivering innovation and R&D. Through a more inclusive approach at enterprise-level, the whole or a larger part of the workforce would benefit from the innovation process, for instance in terms of learning, skills upgrading, management, teamwork, work-life balance, mobility, career models, remuneration and financing. In some cases, this could be ensured by extending aspects of the measures and company practices to a broader group of employees.

Tailor measures for the national context

The findings show that innovation performance and employment levels are important aspects of the territorial and country dimensions of innovation. These aspects should be taken into account when designing innovation support: for example, direct job creation in R&D activities could be needed more in countries suffering high unemployment, while effort is best channelled into skills enhancement and reskilling in countries experiencing labour shortages or skills mismatches, especially in innovative sectors.

The way that measures at different levels interact needs to be recognised and thought given to how they can be combined within the innovation infrastructure and culture of particular countries and regions. Better integration of measures can strengthen their efficiency and effectiveness in terms of funding, relevance (by providing a broad offer that can be adapted to the different types of company needs) and sustainability (by enhancing the institutional and entrepreneurial ecosystem).

Monitor and evaluate measures systematically

The employment dimension should be explicitly incorporated in monitoring, reporting and evaluations. Monitoring should accompany the whole lifecycle of a measure, providing sufficient details on its employment dimension and tracking the effects both during implementation and for a sufficient time after its finalisation. Processes that give rise to changes in the mindset, orientation and culture of the enterprises receiving support and that contribute to improve the environment in which they operate should be better identified and mapped.

Evaluation of innovation measures could be improved by balancing the strong focus on assessing effectiveness and efficiency with attention to wider aspects, such as the internal coherence in terms of policy design, the external coherence with employment policies, the relevance to the needs of enterprises – especially start-ups and SMEs – and sustainability. It is critical to give better consideration to the interaction between innovation measures and other interventions, both in the employment policy area and beyond, as part of a complex and rich contextual setting.

More details of this study are provided in the accompanying working paper, *Employment effects of public innovation support measures*, available at <https://www.eurofound.europa.eu/publications/policy-brief/2018/employment-effects-of-innovation-support>



Resources

All Eurofound publications are available at www.eurofound.europa.eu

Empirica Gesellschaft für Kommunikations- und Technologieforschung mbH, Dialogic and University of Applied Sciences Northwestern Switzerland (2013), *Policies in support of high-growth innovative enterprises – Characterisation of innovative high-growth firms*, final policy brief 1 for the European Commission, DG Research and Innovation, Brussels.

Eurofound (2018), *Employment effects of public innovation support measures*, Dublin.

European Commission (2010a), *Europe 2020: A European strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels.

European Commission (2010b), *An agenda for new skills and jobs: A European contribution towards full employment*, COM(2010) 682 final, Strasbourg.

European Commission (2011), *Europe 2020 flagship initiative: Innovation Union*, SEC(2010) 1161, Publications Office of the European Union, Brussels.

European Commission (2016), *European innovation scoreboard 2016*, Publications Office of the European Union, Luxembourg.

European Commission (2017), *European innovation scoreboard 2017*, Publications Office of the European Union, Luxembourg.

OECD (2005), *Innovation*, Glossary of Statistical Terms.

OECD (2010), *Ministerial report on the OECD innovation strategy: Innovation to strengthen growth and address global and social challenges*, OECD Publishing, Paris.

Potters, L. (2016), *Innovation and job creation*, background paper, 7th Industrial Research and Innovation Monitoring and Analysis (IRIMA) Workshop, 28 June, Brussels.

Government-backed initiatives to support innovation in business are widespread across the EU. These support measures, if designed and implemented correctly, have the potential to also create jobs – better-quality jobs – to upskill the labour force, to improve job quality and to boost the employment of disadvantaged groups. However, this potential is often not recognised by policymakers and tends to be overlooked in policy development. This brief highlights the employment-related impacts of 15 initiatives in 10 EU Member States implemented by governments to stimulate innovation. The findings offer lessons for effective public interventions aimed at supporting innovation and employment simultaneously.

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is a tripartite European Union Agency, whose role is to provide knowledge in the area of social, employment and work-related policies. Eurofound was established in 1975 by Council Regulation (EEC) No. 1365/75, to contribute to the planning and design of better living and working conditions in Europe.

