

The Netherlands' contribution to the European Research Area

1 May 2016

Introduction

In preparation of the ministerial lunch on the European Research Area on 27 May 2016, this document contains the main Dutch actions that contribute to the further development of the European Research Area (ERA), following the adoption of the European Research Area Roadmap 2015-2020 by the Competitiveness Council in May 2015. The goals and actions stem from policy recently established, such as the 2025 Vision for Science: choices for the future and its progress report, the letters to Parliament on open science and Annual Enterprise Policy Progress Reports. The starting point for each (sub) priority in this document were the Top Action Priorities identified in the European Research Area Roadmap 2015-2020. The Annex contains the document written by the main Dutch stakeholders with a summary of policies, programmes and actions (not being comprehensive), showing the depth and diversity of their contribution to making the ERA a reality.

Top Action Priority in the European Research Area Roadmap 2015-2020:

“Strengthening the evaluation of research and innovation policies and seeking complementarities between, and rationalisation of, instruments at EU and national levels.”

Goal

The Netherlands maintains its prominent international role and promotes the coordination of national and European programmes

Baseline

The conclusions of various national and international studies are unequivocal: Dutch science is of very high quality and represents high productivity. Scientists are eager to work in the Netherlands for various reasons:

- the excellent reputation of the research institutions and researchers,
- high-quality ICT infrastructure and research infrastructures,
- the high quality of scientific output, and
- the international focus on collaboration.

The government is operationalising the goal to maintain this through research and science policy (most notably the 2025 Vision for Science; choices for the future), on the one hand, and enterprise policy, including the top sectors and innovation contracts, on the other.

Vision for Science

The Government of the Netherlands wants to maintain the prominent international role of Dutch science and has formulated a number of ambitions for 2025. The plans of the government regarding science policy are presented in the document

‘2025 Vision for Science: choices for the future’. The ambitions of the government are the following:

1. Dutch science is of worldwide significance.
2. Dutch science has even closer ties with society and the private sector; it has maximum impact.
3. Dutch science continues to be a breeding ground for top talent.

In preparing this vision document, numerous discussions were held with the main stakeholders. Interviews were also held with key figures from the top sectors and representatives of the VNO-NCW employers’ federation, with individual researchers, and with organisations such as the European Commission, The Young Academy, the TO2 alliance, Science in Transition, university lecturers, Spinoza Prize winners, the advisory boards and the research executives of various private sector organisations.

Business policy

The Netherlands’ business policies are underpinned by two key pillars: generic policy aimed at stimulating private R&D and innovation and specific policies referred to as ‘top sectors policy’. Businesses and knowledge institutions work together to develop research programmes in fields in which the Netherlands boasts a competitive international position. This collaboration yields public-private funding for both applied and fundamental research projects, which is then enshrined in two-year innovation contracts. A substantial portion of these projects closely reflect some of the social challenges Europe is facing now. In addition to harmonisation with European and international activities, efforts are also aligned at a local and regional level in order to help create an excellent R&D climate for businesses. The top sectors also focus on the aspects of human capital and regulations. The Dutch government aims to create more innovation-friendly laws and regulations, offering greater flexibility in terms of research and innovation results.

Both policy tracks will contribute to the target (defined as a part of the European Semester) of investing 2.5% of GDP in R&D by 2020. According to the most recent data from Statistics Netherlands (CBS), R&D investment represented 1.97% of GDP in 2014.

Dutch research and science policy must be viewed in the context of European and international policies on research, science and innovation. Dutch researchers make up an integral part of the global system of knowledge sharing and competition. Accordingly, the Vision for Science not only shapes research and science in the Netherlands, but is also of great significance to the Netherlands’ position in the global scientific community. This includes the European Research Area (ERA), of which the Netherlands and its scientific community make up an integral part. 2015 saw various concrete steps towards the further alignment of

national and European policies. With the Dutch national research agenda (NWA) the Netherlands wants to focus its efforts in Europe, especially regarding the societal challenges and enabling technologies in Horizon 2020.

Dutch science played a prominent role in the most recent European Framework programme. As a result, these Dutch participants were able to conduct advanced research in conjunction with numerous other international knowledge institutions and businesses. The networks are of strategic importance to the Netherlands as they provide the Dutch scientific community with an opportunity to establish a European profile. Financial results should therefore be viewed mainly as an indicator of the degree to which Dutch researchers and businesses are valued as international partners and regarded as partners in the European Research Area (ERA) and the European market for innovative products, processes and services. Between 2007 and 2013, the Netherlands received a total amount of research grants which exceeded its contribution to the EU research budget by almost fifty percent.¹ The Netherlands aims to maintain this level for the duration of the Horizon 2020 (2014-2020) programme.

Target and monitoring

- Maintaining the Netherlands' position in the top 5 of countries with the greatest citation impact - Monitoring: TomsonReuters/ CWTS Web of Science.
- Retention of the total amount of research grants from Horizon2020 (2014-2020) awarded to participants in the Netherlands compared to the Dutch contribution to the EU research budget (1.48 in 2007-2013) – Monitoring: RVO.
- The Netherlands is ranked in the top 5 of global knowledge economies by 2020.
- Increase in Dutch R&D efforts to a total of 2.5% of GDP (in 2020) – Monitoring: European Semester.
- Leading Knowledge and Innovation consortia funded through the participation of both public and private parties (representing a stake of over €800 million of which at least 40% is provided by the business sector in 2020).
- For innovation and research to have maximum impact on jobs, growth and addressing societal challenges a regulatory framework is required that is conducive to research and innovation: i.e. future-proof, more goal-oriented, and avoiding to impose unnecessary burdens on innovative businesses, including SMEs, and other research and innovation actors (research and innovation friendly regulation).

Actions and timeline

- Research institutes are encouraged to compete for European projects with the Encouraging European Research regulation (€50 million a year).
- There will be a follow-up to the Dutch national research agenda, in which all parties involved in the Dutch national research agenda will have a role and responsibilities. The government response to the agenda of 27 November 2015 describes the follow-up process and outlines further implementation actions. Route workshops are organised to equip Dutch researchers to find solutions to challenges of our time and to foster the necessary transitions in such areas. Multiple stakeholders are involved in route workshops to define the big game changers. Besides, the routes serve as a tool for seeking out new partners.
- Legislation is currently being prepared to ensure a more predictable and stable first flow of funds through the introduction of a cap on the component payable in respect of the number of doctorates awarded and an institutional funding system based on three-year averages. This new legislation should be submitted to Parliament accompanied by a preliminary scrutiny procedure before the summer of 2016. The aim is that the amendments will take effect in October 2016.
- The government will strive to conclude a framework agreement with the VSNU (Association of Universities in the Netherlands) before the summer, in which the Ministry of Education, Culture and Science and the VSNU set out the joint mission and challenges to be addressed. Amongst other aspects, the Ministry wishes to address the Dutch national research agenda, the balanced valuation of research, education and valorisation, differentiated career paths and the position of women in the scientific community.

¹ Letter to Parliament from the Ministries of OCW and EZ, dated 19 June 2014 concerning Netherlands' participation in the Seventh Framework Programme for Research and Technological Development (KP7): Parliamentary Proceedings 2013-2014, 21 501-31, no. (343) (Dutch only).

- The Gravitation Programme will increasingly focus on the intrinsic differences between scientific disciplines. Providing the quality standards are met, the upcoming round of the Gravitation Programme in 2016 will grant at least one application from each scientific domain. Further attention will also be devoted to the issue of gender diversity, while the assessment framework will be expanded to include harmonisation with the strategic routes set out in the Dutch national research agenda.
- The new NWO (Netherlands Organisation for Scientific Research) organisation is aimed to be launched on 1 January 2017, with the Parliament to receive a proposal for amendment of the NWO Act in mid-2016. NWO plays a key role in the Dutch scientific landscape, in its capacity as the allocator of the second flow of funds. Increasingly, policy developments such as those surrounding the Dutch national research agenda and top sectors, are necessitating a coherent programming strategy and interdisciplinary, multidisciplinary and cross-sectoral approaches in which NWO plays a central role. The outcomes of the NWO evaluation also prompted the conclusion that the organisation will have to become more decisive and flexible.
- Individual evaluations conducted by research institutes of NWO and KNAW (Royal Netherlands Academy of Arts and Sciences) will be supplemented by periodic evaluations of the integral network of institutes in order to ensure a more responsive and dynamic institutional network. The first of these periodic evaluations will be held in 2018. A preparatory baseline measurement will be conducted in 2016.
- Innovation friendly regulation: Investigate the broader use of 'green deals': in the Netherlands we have good experience with our so called 'green deals'. These deals are voluntary agreements between the central government and various parties, such as businesses and NGOs. The focus of the deals is to remove barriers to innovation. This includes regulatory obstacles. The aim of the deals is to boost innovative solutions within 3 years, which are good for environment and economy. We have found that this method also works with initiatives which are not 'green'. We now have 'health deals' and are working on 'city deals'. The key element in these deals is: innovation.
- Innovation friendly regulation - Innovation principle: developing an assessment, by default, of the impact on innovation in the legislative process.
- Alignment of European, national and regional policy: the Top sector research programmes are focused on EU topics and is accompanied by a regional cooperation contract targeting SME's and matching Top sectors per region (relevance based on regional innovation strategies). National contact points, regional management authorities and other intermediaries combine efforts to inform, advice and train beneficiaries, especially SME's.
- The financing of public-private partnerships at EU level (joint technology initiatives).
- Tax schemes aimed at stimulating private R&D investment (WBSO) and support for PPP constructions (TKI, MIT).
- Specific actions relating to large-scale research infrastructures, talent policy, women in science, knowledge transfer and open access to scientific publications are included in the next paragraphs.

More information

- [2025 Vision for Science; choices for the future](#)
- [Dutch national research agenda](#)
- [Annual Enterprise Policy Progress Reports and Two-year innovation contracts](#)

Top Action Priority in the European Research Area Roadmap 2015-2020:

“Improving alignment within and across the Joint Programming Process and the resulting initiatives (e.g. Joint Programming Initiatives (JPIs)) and speeding up their implementation.”

Goal

The Netherlands supports the effort towards more effective coordination between national research programmes and the underlying principle of joint programming of research

Baseline

The Netherlands regards the development of joint research agendas as a key product of the current Joint Programming Initiatives. The scope of these agendas' influence extends beyond the initiatives themselves. The agendas and lessons learned from their development thus represent an important instrument in the effort to develop the European Research Area. This also applies to the various networks enabling parties to interact and learn from one another at a national level.

The Netherlands is an active participant in all Joint Programming Initiatives. The current Joint Programming system (largely based on thematic calls) and the Dutch system are not fully aligned in their agendas, programming and the allocation of resources. A special measure has therefore been created in recent years to facilitate more intensive participation. Top sectors' research programming currently emphasises societal challenges and links with Horizon 2020, both within the individual top sectors and at cross-sectoral level. Within the top sector agendas, a scheme has been set up to promote joint activities with other countries (ERA nets, JPIs, etc.). This approach has proven to be effective, as evidenced by the Netherlands' relatively intensive participation in the JPIs. The final report of the Expert Group on Joint Programming mentions The Netherlands as one of the most prominent actors (a 'Leader') in Joint Programming so far. The report also notes that “What is particularly noticeable is that some countries (e.g. Germany, Netherlands, UK, Austria, and Ireland) have apparently invested more than their pre-committed budgets, which is very encouraging in terms of commitment.”²

Target and monitoring

- Maintain the current level of participation in Joint Programming Initiatives.

Actions and timeline

- During the 2014-2017 period, the ministries of Education, Culture and Science and Economic Affairs will be making available a total of €36 million as part of a special measure to enable NWO to co-finance specific European collaborations connected with the top sector research agendas in order to stimulate the internationalisation of these top sectors and expand links with the Grand Challenges of Horizon 2020.
- Connecting the strategic routes of the Dutch national research agenda and European themes will open the way to substantive collaboration with international partners.

² Report of the Expert Group on Joint Programming, 'Evaluation of Joint Programming to Address Grand Societal Challenges (2016).

Top Action Priority in the European Research Area Roadmap 2015-2020:

“Making optimal use of public investments in RIs by setting national priorities compatible with the ESFRI priorities and criteria taking full account of long term sustainability.”

Goal

A more strategic approach to large-scale research infrastructure

Baseline

Large-scale research infrastructures are increasingly crucial to scientific research. These facilities are key to scientific breakthroughs in a wide range of areas, from the development of new medicines to the discovery of life's origins. Access to such large-scale facilities is thus of strategic importance. They attract exceptional talent, and in addition these facilities also help generate economic activity.

Decision-making with regard to investments in large-scale research infrastructure is extremely complex. Universities in the Netherlands have generally been successful in making the right choices with regard to new investments and the maintenance of existing facilities. In addition, the National Roadmap for Large-scale Research Facilities has proven effective in facilitating new investments. Further improvements are possible and choices with regard to investments in large-scale scientific infrastructure must now be made. The 2025 Vision for Science announced the creation of a Permanent Committee for Large-Scale Scientific Infrastructure in order to facilitate strategic decisions on investments in facilities for basic research. This committee has since been established by NWO. The permanent nature of this committee will support long-term decision-making and a sustained focus on the balance between creating scope for new facilities and the continuity of existing ones.

Besides the importance of developing large-scale research facilities, the effort to maintain our leading global position in ICT research infrastructure and data infrastructures will require even greater attention. Researchers from all scientific disciplines, ranging from the humanities to astronomy, are facing exponential growth in research data volumes. This veritable explosion of data is being generated not only by new research facilities, but also by citizens and businesses. Just as astronomers need the ability to process data yielded by the latest generation of telescopes, social scientists must be able to process the growing volume of data generated by social media. Like large-scale research facilities, individual universities and institutions lack the necessary financial resources for investments in ICT infrastructure.

Target and monitoring

- A new Netherlands roadmap for research infrastructures by the end of 2016 based on the strategic advice of the Permanent Commission, and a call for investment in these infrastructures in 2017 (€100 million).
- A Strategic Agenda for applied research facilities by late 2016.

Actions and timeline

- After completing a landscape analysis of scientific research facilities (including the facilities used by other organisations such as applied research institutions (TO2) and government knowledge institutions) and an assessment of investment opportunities, the Permanent Committee for Large-scale Scientific Infrastructure will prepare its recommendations for the development of a new National Roadmap for large-scale scientific infrastructures. Special attention will be paid to striking a good balance between investments in large-scale research facilities and investments in scientific ICT infrastructure. The Permanent Committee has established a subcommittee on ICT to this end.
- A new National Roadmap Large-scale Research Infrastructure will be published by the end of 2016. The new National Roadmap will reflect the Dutch national research agenda and the European roadmap for large-scale research facilities drawn up by the European Strategy Forum on Research Infrastructures (ESFRI).
- A call for applications for funding in the infrastructures on the new National Roadmap Large-scale Research Infrastructure will be published in 2017 (€100 million)
- We are asking universities, institutes and centres for applied knowledge to provide insight into their use of infrastructural resources, and that universities and institutes align their investment policies

with the roadmap and periodically report on this process.

- Dutch tenders will be optimally aligned with the upcoming ESFRI rounds (2018, 2020).
- The Ministry of Education, Culture and Science allocates an annual budget of €18.5 million for the renewal of ICT infrastructure. In 2015, the ministries of Education, Culture and Science and Economic Affairs decided to contribute an additional €12 million over the 2017-2019 period. An additional one-off amount of €8 million was also allocated from the Future Fund pursuant to the Mei Li Vos/ Verhoeven amendment. This will enable SURF to invest the necessary funds in replacing ICT infrastructure components nearing the end of their lifespan.
- The Minister of Economic Affairs will publish a Strategic Agenda on applied research facilities in late 2016.

More information

- [Permanent Committee for Large-Scale Scientific Infrastructure](#)

Top Action Priority in the European Research Area Roadmap 2015-2020:

“Using open, transparent and merit based recruitment practices with regard to research positions.”

Goal

A more strategic and effectively coordinated talent policy for science aimed at attracting, retaining and developing scientific talent in order to strengthen the system and invest in the knowledge society and economy

Baseline

Universities and research institutions have HRM policies and also use various instruments to promote international mobility. The government contributes to this talent policy, for example through measures that improve the stability and predictability of university funding and remove obstacles to international mobility. It has become clear that further measures will also be needed to attain a more balanced pool of scientific talent, which can then be offered incentives through modernised career policies. An open and transparent labour market is crucial in this respect, contributing to healthy influx, advancement and outflow and creating an internationally appealing climate. To this end, the 2025 Vision for Science stipulates that:

- We shall encourage scientific talent to become fully involved in all aspects of research, education and valorisation.
- We shall position the Netherlands as the ‘preferred’ location in which to pursue a scientific career.
- We shall promote good inflow, throughflow and outflow with equal opportunities for women in research and
- We shall focus on the researcher, offering full opportunity to do what he or she is best at.

The Dutch national research agenda and an attractive scientific climate (in terms of aspects such as research facilities) will help to establish the Netherlands’ international profile. As regards international competition, more attention will need to be paid to improving our country’s appeal and ensure a constructive contribution to the ERA. As a part of this effort, several institutions have formulated ambitions in relation to the principles of the Charter & Code for good employment practices (which include open and transparent recruitment and selection procedures) for which they received a European HRS4R award (Human Resources Strategy for Researchers).

The Top Sectors’ Human Capital Agendas develop incentives to interest prospective students in a scientific career. Investments in individual talent (human capital) can yield important economic contributions, as higher productivity levels ensure that the same number of people can generate greater added value. The availability of driven and talented people is crucial to the development of an appealing science and business climate. Both the general economy and scientific community need people – both employees and entrepreneurs – with the right competences and who have the capacity and drive to put them to optimal use. The theme of Human Capital concerns the performance of the labour market in a broad sense and therefore spans multiple dimensions, including scientific dimensions. Examples are procedures for the appointment of foreign knowledge workers and researchers, the system of laws and regulations that determines labour mobility, incentives to choose entrepreneurship over employment and impediments to the optimal alignment of supply and demand for specific competences and skills.

Target and monitoring

- A strong talent policy through which the Netherlands plays a constructive role in the ERA and the international mobility of talented scientists will contribute to surprising new insights, supplementary networks and new knowledge and expertise. Qualitative targets that contribute to better career opportunities for researchers, intersectoral mobility, Holland branding (Dutch academia branding) and a level international playing field to ensure fair international competition, are more important in this field. Monitoring will be organised through agreements with universities and institutions.

Actions and timeline

- A recently submitted bill on higher education and research internationalisation contains provisions for further expansion of the right to confer doctorates. This will enable university Doctorate Boards to appoint academic staff members, who do not hold professorships but do have the qualities, to serve

as PhD student supervisors. The bill also establishes a new hierarchy in which the degree of Dr is equivalent to that of PhD. This will serve to create a level playing field and ensure fair international competition.

- We shall encourage universities to devote greater attention to combined career paths, whereby tenure or promotion does not depend solely on publication output.
- The talks of the government with the VSNU about the new framework agreement may well include matters relating to strategic personnel policy, such as an updating of the current career paths structure, more opportunities for young talent, more attention for education by means of combined career paths, balanced attention for performance in research, education *and* valorisation, preparation of PhD students to pursue career opportunities in other sectors, and the appointment of more women professors. Talented scientists will have the opportunity to choose from multiple career paths into research, education and valorisation. Efforts will also be made to encourage the intersectoral mobility of PhD candidates and corporate or government employees wishing to pursue a doctorate.
- Given the immense diversity in the career paths followed by PhD graduates, there appears to be a need for greater differentiation in the PhD programmes to ensure a better match between what is taught (and learned) and the student's requirements in later life. We wish to facilitate an experiment whereby universities can extend grants from the 'profiling' fund to a PhD student. The PhD student will then complete the third stage of his or her academic education by undertaking a teaching programme.
- NWO will bring the Innovative Research Incentive (*Vernieuwingsimpuls*) programme to the attention of selected international researchers.
- The Ministry of Education, Culture and Science will be developing a Dutch academia branding initiative in collaboration with the VSNU, VH (Netherlands Association of Universities of Applied Sciences), NWO and KNAW, aimed at jointly promoting the unique selling points. The Ministry will organise meetings with the VSNU, VH, NWO and KNAW about this in 2016, which will also consider the International Positioning/Branding Memorandum issued by the VSNU and VH.

More information

- [2025 Vision for Science; choices for the future](#)

Top Action Priority in the European Research Area Roadmap 2015-2020:

“Translating national equality legislation into effective action to address gender imbalances in research institutions and decision making bodies and integrating the gender dimension better into R&D policies, programmes and projects.”

Goal

The more effective deployment of talented women by Dutch scientific institutions, especially at the senior level

Baseline

The institutions have primary responsibility for the development of talent policies. The Dutch scientific community is leaving a great deal of female talent untapped, especially in higher-level positions. This is also reflected in the Monitor Women Professors 2015 published by the Dutch Network of Women Professors (LNVH) (17% of all Dutch professors were female at the end of 2014). The VSNU informed the Ministry of Education, Culture and Science about the target figures for 2020 as formulated by Dutch universities in its letter of 17 December 2015. As regards gender policies in the higher education sector, the government takes the position that institutions should make greater individual efforts to break with current trends and take a more ambitious approach. A target figure of 30% was set for the percentage of women in professorial and board-level positions at universities and research institutions.

The Netherlands Institute for Human Rights published a report on the study on equal pay at universities of applied sciences in early 2016. It found that in situations where employees do not receive the remuneration to which they are entitled, women are twice as likely to be underpaid and generally receive half as much as their male counterparts. This gender pay gap must be addressed and represents an urgent issue in current Dutch policies on gender issues in the scientific community.

Alongside action intended to create equal opportunity, attention must be devoted to the role that gender differences play within research itself. This too is in line with the intentions of the Horizon 2020 programme, not least because it is a factor which, when ignored, could result in sub-optimum research and output. The NWA has formulated 16 strategic routes. The majority also factor in existing male-female differences in research content (Gendered Innovations). This is especially relevant in the case of routes related to social, economic and health-related issues, such as personalised medicine.

Target and monitoring

- A target of 30% women in professorial and board positions at universities and research institutions, with the proviso that specific institutions and disciplines may require a tailored approach. The percentage of female scientists varies depending on the discipline. Monitoring:
 - Publication of Monitor Women Professors published by the Dutch Network of Women Professors, in collaboration with the VSNU and research institutions. A 'light' version of this document is set to be published annually from 2016 to supplement to the more extensive thrice-yearly publication.
 - The EU She figures.

Actions and timeline

- The Netherlands will align its policy and action with the European initiatives. We shall act in accordance with the Commission's intentions as drafted in the Horizon 2020 programme and, together with the institutions, adopt an active policy intended to ensure that the male-female balance is at or above the European average by 2025 (in 2010, that average was 20%).
- Similarly, our policies will take into account the Council Conclusions on Gender which were published during the Luxemburg EU presidency in December 2015.
- An equal male-female balance will also form part of the new framework agreement with the VSNU in 2016. If progress won't have a realistic tempo or speed, firm targets will be included in the Higher Education and Scientific Research Act.
- A taskforce formed by OCW, LNVH and NWO/VSNU (with VH if appropriate) will produce proposals whereby better use can be made of female talent. Initially, this taskforce was primarily concerned

with issues with regard to the submission and assessment of research proposals. In the future, the taskforce will focus on exchanging best practices and monitoring progress in the context of political decision making.

- We support a two-year project by the Gender and Health Alliance, centring on education, research and awareness with regard to gender differences and how they influence the quality of healthcare. The Alliance includes representatives of the healthcare sector, research field, expert organisations, women's advocacy groups and policy departments. The project will result in a National Programme for Gender and Health.
- The minister of Education, Culture and Science aims to consult with the VSNU and executive board chairs before the summer to discuss the universities' ambitions for the number of women professors.
- The Dutch Network of Women Professors will be presenting the outcomes of a study on the possible gender pay gap at Dutch universities later this year.

More information

- [2025 Vision for Science: choices for the future](#)

Top Action Priority in the European Research Area Roadmap 2015-2020:

“Fully implementing knowledge transfer policies at national level in order to maximize the dissemination, uptake and exploitation of scientific results. RPOs and RFOs should make knowledge transfer second nature by integrating it in their everyday work.”

Goal

The Netherlands optimally applies the knowledge it develops towards societal and economic value creation

Baseline

Valorisation has been a key element of science policy since 2004 and has also been recognised in the 2025 Vision for Science as a key contributing factor in the process of knowledge circulation and application. Valorisation is an aspect of our universities' duty to transfer knowledge to broader society and the economy. The knowledge and insights yielded by research can be shared in many different ways. Indicators that are often used include patents, spin-off companies and licences. However, the list of applied methods is more diverse and includes software, consultancy services, training programmes, postgraduate education, exhibitions, websites, books, presentations and media appearances. The most effective method will depend on the specific research project, researcher and stakeholders.

Fortunately, a growing number of researchers and institutions are currently paying attention to valorisation. This is partly attributable to the Valorisation Programme established by the ministries of Economic Affairs and Education, Culture and Science in an effort to support higher education institutions working to design and implement infrastructures that facilitate such valorisation. The necessary infrastructure can be created by offering institutions support for specific targeted activities, such as entrepreneurship training, technology transfer activities (TTOs), incubation activities (including mentoring and coaching) and business financing during the preseed and proof of concept phases. The universities and universities of applied sciences are currently developing a framework for providing transparency on their various forms of valorisation, including how research results are incorporated into programme curricula. The VSNU has also incorporated valorisation into its job profiles for researchers and university lecturers. Valorisation has therefore become an integral part of the job. The universities of applied sciences are making considerable investments in valorisation and entrepreneurship training. Students are being actively encouraged to develop entrepreneurial activities, both through the Valorisation Programme and other incentives. Knowledge application ranks amongst NWO's key priorities, and all of its grant programmes require the completion of a section on knowledge valorisation. Insofar as this can be determined at the time of application, this section should describe the research project's potential societal and economic contributions. In March 2014 the VSNU, KNAW and NWO published a revised SEP (standard evaluation protocol), which explicitly includes societal relevance as a criterion for the evaluation of research projects and offers room to define and assess broad valorisation activities within the context of the relevant scientific disciplines.

Interinstitutional valorisation has been the focus of government attention in the wake of the 'Valorisation of patents on scientific research results' report issued by the KNAW, VSNU, NFU (Netherlands Federation of University Medical Centres) and NWO. The government emphasises the importance of a nationwide focus on specific combinations between strong scientific disciplines and markets. This concerns the clustering of excellent research within a specific discipline and the establishment of national technology transfer. These initiatives will serve to link excellent research with excellent technology transfer and will be conducted in close consultation – and, where possible, collaboration – between the participating knowledge institutions' existing technology transfer offices. Collaborations will also be initiated with other parties, including private organisations.

Target and monitoring

- The Valorisation Programme for the 2010-2018 period includes an assessment of the 12 co-financed consortia on their own indicators, on the basis of annual plans and reports.
- An ex-post evaluation of the Valorisation Programme will be conducted in 2018-2019.
- In line with the current evaluation system for academic research quality, the societal and economic relevance of research projects will be ensured through inspections on the basis of the SEP.

Actions and timeline

- The VSNU and VH will be publishing a report on the development of valorisation indicators at the start of this year. The report will then serve as a basis for further negotiations with the scientific field. The emphasis will be on raising awareness about the many ongoing knowledge transfer and valorisation initiatives. Such efforts should take account of the fact that valorisation methods will differ depending on the relevant discipline, as the SEP acknowledges. Efforts should be made to accommodate more differentiated career paths that emphasise education and valorisation in addition to research qualities. This aspect will be discussed as a part of ongoing negotiations with the VSNU on a new framework agreement.
- Past performance in the area of valorisation will be weighted more heavily in future research proposal assessments. NWO is currently elaborating parameters for the weighting of past performance, and expects to have them finished by mid-2016.
- The Ministry of Education, Culture and Science has commissioned the Rathenau Institute to conduct a follow-up study on the perceived and actual balance between research, education and valorisation. The study should also serve to determine how this balance evolves over the long term
- A pilot project in oncology (Onco XL) is being set up involving collaboration on the basis of excellent research and excellent technology transfer, co-financed through public funding, grants and a loan from the Future Fund.
- A call for thematic technology transfer on the basis of experiences gained during the pilot project, in order to obtain a loan from the Future Fund.

More information

- [2025 Vision for Science; choices for the future](#)

Top Action Priority in the European Research Area Roadmap 2015-2020:

“Promoting open access to scientific publications and optimal reuse of research data.”

Goal

A rapid transition towards open access to scientific results, through involving all parties: researchers, universities, research funders and scientific publishers. The aim will be to develop models through which results can be immediately accessed to read and reuse without any delays or embargoes

Baseline

Open access to scientific knowledge output is crucial for the advancement of science, the promotion of innovation and the resolution of societal challenges. Consequently, the results of publicly funded research should also be made publicly available. As regards publications, models that provide immediate online access would be the preferred option. In the future, research data will be stored for a period of several years and adequately secured, ensuring reliability, findability and suitability for reuse purposes, and thus optimal accessibility.

The government described its national open access policy in a letter to Parliament in November of 2013, which was subsequently followed up by an update prepared in January 2015.

The Netherlands has a unique position due to the large number of major scientific publishers located in the Netherlands and high productivity of Dutch researchers at universities and research institutions. Negotiations between the Dutch scientific community and publishers are thus both possible and necessary: the transition towards open access publishing will have to take place within the current budgetary framework for access to publications. The involved research organisations and publishers in the Netherlands have prepared for a rapid transition from traditional publication methods to open access.

Multiple offsetting agreements have been reached, enabling access to international publications while ensuring that publications by Dutch authors are immediately published on an open access basis. National research funder NWO has also further tightened its open access policies: the results of NWO-funded research projects are now to be published immediately. A fund has been made available for the funding of the gold road (this does not extend to hybrid models), while green road open access is allowed, providing no embargo periods are applied.

Broad accessibility of research results and the optimal reuse of research data is also important in this regard. The Netherlands is currently making active efforts to stimulate further development and international cooperation in the area of the optimal reuse of research data, with key stakeholders (VSNU/universities, SURF, NWO, KNAW) currently working together on developing a national infrastructure to facilitate this..

The Netherlands was in the lead of the Task Force that delivered the ERAC opinion on open research data to also take this forward on a European level.

Target and monitoring

- Target: 60% of all publicly funded scientific articles will be published in peer-reviewed journals on an open access basis by 2018; and 100% by 2024.
- Figures can be gathered most effectively at the publication source, offering all universities an instrument to achieve their open access targets. Coordinated by the VSNU, the universities are now working to adapt their infrastructures (research information systems) to better monitor open access publications. The first results are set to be presented in late 2016.
- The research institutions within NWO and the KNAW will also provide such reports through their umbrella organisations, while NWO will report on the percentage of open access publications yielded by its research funding.

Actions and timeline

- NWO will more strictly reinforce the compliance with the obligation to publish open access, including by attaching consequences to non-compliance. Since publications that have come about under the new granting scheme will only emerge after some time, NOW has set a transitional period until 1 January 2018. During this period, NWO will enter into dialogue with researchers that encounter

obstacles when publishing. From 1 January 2018, NWO will enforce the new policy, which may ultimately lead to partial recovery or deduction of amounts granted.

- As a part of its pioneering role at European and international level, the Netherlands will seek out alliances with like-minded countries in order to generate the necessary critical mass and support to achieve a rapid transition to open access.
 - Open science (with a focus on open access to publications and the optimal reuse of research data) has been earmarked as a priority for the Dutch EU Presidency during the first half of 2016.
 - NWO, VSNU (incl. the UKB consortium of university libraries and the National Library of the Netherlands), the National Library of the Netherlands and SURF have agreed to promote open access in international bodies, such as the European and international organisations of which they are members.
- If the target has not been met by 2018, we will consider enshrining the obligation to ensure open access publication in the Higher Education and Research Act (WHW).

More information

- [Letter to Parliament, 2013-2014, 31 288, no. 354](#)
- [Letter to Parliament, 2014-2015, 31 288, no. 414](#) (Dutch only)
- [NWO Open Science Policy](#)
- [VSNU E-zine](#) (on open access agreements with publishers)

Top Action Priority in the European Research Area Roadmap 2015-2020:

“Develop and implement appropriate joint strategic approaches and actions for international STI cooperation on the basis of Member States’ national priorities.”

Goal

Effective international cooperation with third countries at both national and EU level, in order to effectively respond to major societal challenges, facilitate access to emerging markets and increase the ERA's appeal for talented scientists and investors from around the world

Baseline

It must be clear to researchers in other countries that the Netherlands offers excellent career opportunities. Dutch science must be placed firmly on the world map. The Dutch national research agenda and an attractive scientific climate (in terms of aspects such as research facilities) will help to establish the Netherlands’ international profile. At the same time, we have to know which top researchers we actually wish to have working here. This will largely be determined by our research focal points.

Bilateral innovation policies will be instrumental in realising the Dutch government's ambition to evolve from an innovation follower into an innovation leader. This will include efforts to create and capitalise on opportunities to expand the public-private share of Dutch GDP in research and development. Bilateral policies encompass a broad spectrum of policy and implementation. The top sectors policy serves to integrate the policy agendas on innovation, human capital and the acquisition of foreign investments with policies on international trade and business. All top sectors are bound by their own individual innovation contracts as concluded in October 2015 and apply specific approaches to internationalisation and marketing. This approach represents one of the key principles underpinning this agenda.

Actions and timeline

Multilateral

- As a part of the third key pillar of Horizon 2020 – the Societal Challenges – the Netherlands will be working to achieve international collaboration with third countries. The themes associated with these societal challenges are ideally suited to this form of collaboration. Challenge 6 (Europe in a changing world: Inclusive, Innovative and Reflective Societies) offers especially great potential in this area, in relation to the third theme: 'understanding and strengthening Europe's position in the wider world.'

Bilateral

- As regards bilateral innovation alliances, the Netherlands boasts a small, yet focused network: the Innovation Attaché Network. The innovation attachés are stationed in 18 countries (including in the EU), the majority of which consist of leading and emerging knowledge economies and offer Dutch parties seeking to become active in innovation, technology and science access to these markets.
- We expect institutions to devote attention to strengthening an attractive environment for international talent since there are clear gains to be had. The options include excellent facilities, dual career structures and a realistic prospect of a permanent position (tenure) during the research project or on its completion. Inter-university cooperation, as in the Gravitation Programme (Zwaartekrachtprogramma) creates visible internationally visible peaks.
- NWO will bring the Innovative Research Incentive (Vernieuwingsimpuls) programme to the attention of selected international researchers. The Innovative Research Incentive provides a personal research grant to creative researchers, awarded further to open competition. Of special interest are those researchers who can bring significant added value to the Netherlands’ research landscape by virtue of their focus on the challenges of the Dutch national research agenda.
- It will be important to coordinate the missions undertaken by representatives of universities and knowledge institutes with the (economic) missions of the government. Where joint representation has added value, it will be appropriate for the knowledge institutes and private sector to coordinate their efforts with those of the government, as noted by the VSNU and the VH in their Joint International Vision Document. The knowledge institutes must not only present themselves as individual universities or centres, but as part of the overall science system and emphasize what Dutch universities and Dutch researchers have to offer.
- The themes of the Dutch national research agenda must be clearly profiled as our key strengths: the areas in which Dutch research excels. Important partners in this process are NUFFIC, which has nine

Education Support Offices outside the European Union, and the Innovation Attachés.

More information

[The Dutch Innovation Attaché Network](#)

ANNEX I – Contribution to Realisation ERA

Introduction

The Dutch stakeholders, represented by the Association of Dutch Universities (VSNU), the Royal Netherlands Academy for Arts and Sciences (KNAW), the Netherlands Organisation for Scientific Research (NWO) and the Netherlands Federation of University Medical Centres (NFU) embrace the concept of the European Research Area as a vehicle to open up and connect European research system, so that knowledge, data, technology and researchers can circulate freely.

The European Commission focuses on six main priorities for the realisation of the ERA. Along the lines of these six priorities, please find below an overview of initiatives, actions and programmes carried out by the abovementioned stakeholders as contribution to the (Dutch) roadmap for the ERA.

Priority 1 Effective national research systems	Strengthening the evaluation of research and innovation policies and seeking complementarities between, and rationalisation of, instruments at EU and national levels.
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“Open national-level competition is crucial to deriving maximum value from public money invested in research”

- In the Netherlands, a system of funding competition and allocation in a transparent manner has long been established.¹ Via a system of independent, international peer-review, knowledgeable experts from all over the world contribute to the assessment and selection process of high quality research projects and programmes;
- The assessments of research-performing organisations is done by using a Standard Evaluation Protocol (SEP). Such assessments remain desirable since this leads to organisational change and structural improvement. However, the outcomes of these assessments should not become the *only* criterion for decisions about the basic funding of institutions. This could lead to a system in which scientists will be forced to focus even more on production, output and impact². A good balance between a competitive system and the freedom to be creative and innovative, remains important.

¹ Meticulousness and efficiency are paramount in the performance of its tasks and responsibilities, as established in the NWO Act, wet op de Nederlandse organisatie voor wetenschappelijk onderzoek.

² See also: San Francisco Declaration on Research Assessment (DORA) and the Dutch discussion in Science in Transition.

Priority 2	Improving alignment within and across the Joint Programming Process and the resulting initiatives (e.g. Joint Programming Initiatives (JPIs)) and speeding up their implementation.
a. Jointly addressing grand challenges	Making optimal use of public investments in RIs by setting national priorities coherent with the ESFRI priorities and criteria taking full account of long term sustainability.
b. Make optimal use of public investments in Research Infrastructures	

“The EU needs to act urgently and coherently to achieve the scale of effort and impact needed to address grand challenges with the limited public research funds available.”

- On a national level, common priorities and strategic research agendas are defined. The stakeholders engage in connecting these national priorities to a European agenda and the European grand challenges. The recent National Research Agenda (NWA)³ has the ambition to bring Dutch thematic knowledge programming and thematic agenda’s closer together and jointly align with European and international developments.
- In the European context, Joint Programming Initiatives (JPI’s) are intensively engaged in cross-border and general thematic programming. This is strengthening the instruments such as ERA-NETs, in which a great variety of joint research (funding) programmes have been implemented. In the development of international research programmes between funding agencies, NWO and its partners strive to implement single joint international peer-review evaluation of proposals, safeguarding standards of excellence. They form the basis of joint funding decisions, and ensure mutual recognition of evaluations.
- NWO and its European partners, united in Science Europe, have developed various models for cross-border collaboration and set up pilot-calls, in which national guidelines are always leading. This helps to promote more alignment at European level.
- To further enhance multidisciplinary cross-border research, the stakeholders strive to remove barriers within national programmes to permit joint funding of excellent research projects. Additionally, the stakeholders work to allow cross-border access to and portability of national grants where possible within national legal frameworks.
- The Dutch Permanent Committee for large scale research infrastructures has been established in 2015 and leads the process of defining the National Roadmap for research infrastructures and investments. Additionally, the stakeholders are committed to removing any legal and other barriers to cross-border access to research infrastructures.
- Groups of national funding agencies are exploring possibilities to join forces for the construction and (at a later stage) exploitation of some of the projects on the ESFRI Roadmap.

Priority 3	Using open, transparent and merit based recruitment practices with regard to research positions
An Open Labour Market for Researchers	

“While researcher mobility contributes to excellence, several obstacles stand in the way of a genuine European research labour market.”

- The research positions are filled according to open, transparent and merit based recruitment, proportionate to the level of the position in line with the principles of the Charter & Code and including non-EU nationals.
- For a true European Research Area, it is important that it is as easy as possible for a researcher to work wherever the researcher needs to be to deliver the best research. Through “Academic Transfer”, a website linking all academic institutions in the Netherlands, all academic vacancies are advertised on the EURACCESS Jobs portal (including vacancies in science policy and related fields).

³ See also: the Dutch National Research Agenda

- Ten Dutch universities have the HR-Excellence in Research-logo. The last three universities will probably gain this logo in 2017.
- The work on establishing a European pension scheme for researchers, Resaver, is strongly supported by all Dutch research organisations. Membership will be considered immediately after its establishment.
- The mobility between industry and academia is important and receives support in the Top Sector programmes and the technology foundation STW (part of NWO).
- There are experiments with defining and implementing principles for the accessibility to and portability of national grants. If the grant follows the researcher, there has to be some way of reciprocity. This requires political commitment at all levels, including to remove judicial barriers for the portability of national grants or other forms of money flows.

Priority 4 Gender Equality and Gender Mainstreaming in Research	Translating national equality legislation into effective action to address gender imbalances in research institutions and decision making bodies and integrating the gender dimension better into R&D policies, programmes and projects.
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“In spite of national and EU-level strategies on Gender equality, European research still suffers from a considerable loss and inefficient use of highly skilled women.”

- The joint Taskforce “Talent to the Top”⁴ has set goals for numbers of woman in higher positions, committees and boards. A report has been published on success rates for men and women in the talent scheme (VENI), as a result from this report, a “Bias-training” for committee members and internal staff has been initiated.
- The Dutch Network of Woman Professors aims to promote the proportionate representation of woman in academia and conducts impact assessments and audits of procedures and practices to identify gender bias.
- Many research institutes and Dutch universities have individual targets for raising the number of female professors.
- The NWO programme ASPASIA is particularly targeted at the promotion of women to higher research positions. Also, NWO has implemented a set of guidelines to strive for gender-neutral procedures across its funding programmes.

Priority 5 Optimal Circulation and Transfer of Scientific Knowledge, divided in: a. Knowledge Transfer b. Open access to scientific publications	Fully implement knowledge transfer policies at national level in order to maximize the exploitation of scientific results. RPO's and RFO's should make knowledge transfer second nature by integrating it in their everyday work.
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“Research and innovation benefit from scientists, research institutions, businesses and citizens accessing, sharing and using existing scientific knowledge and the possibility to express timely expectations or concerns on such activities.”

- The Dutch Government has set the objective that by 2018 60%, and by 2024 100% of scientific publications funded with public money must be Gold Open Access. Therefore, starting December 1st 2015, granting conditions are tightened in the area of Open Access.
- The Dutch universities and university libraries continue to build on recent agreements that have been reached with several publishers. Open access measures for publications and data resulting from publicly funded research are being adopted and implemented. Electronic identification and digital research services are being implemented and promoted in the Netherlands, among others by SURF.

⁴ The charter of Talent to the Top has been signed by hundreds of organisations from the public and private sector.

- Close cooperation exists between NWO and national and international partners in the transition to full Open Access. A new call will be organised for Open Access journals in 2016: funding for closed subscription journals that are converted into Gold Open Access journals. Awareness is also encouraged among researchers. Publishers are encouraged to develop fully open-access business models. Through Science Europe, NWO contributes to the encouragement of Open Access in a European context.
- National and international partners work closely together in the transition to full Open Access. Through the Top Sector programmes, the National Research Agenda, public-private research consortia and incubators, public research contributes to Open Innovation and knowledge transfer between public and private sectors. Also, using a Digital Author Identifier helps identifying researchers, which helps giving them transnational access to digital research services. In the future, ORCID might be used instead of DAI.
- The Dutch Technology Transfer Offices are strong and have become instrumental in the transfer of knowledge to society. Valuation of knowledge transfer takes place via e.g. Societal Relevance, part of SEP and valorisation indicators.
- Experiments are ongoing to include potential users of the results of research in the early phases of the research itself. This presents a potential opportunity to increase usage of research results.

Priority 6

International Cooperation

6 International Cooperation

Investing in participation in global knowledge networks is an essential part of research and its application. Dutch research institutions invest strongly in these networks and the publications resulting from them are direct proof.

- Individual universities and medical centers have established bilateral (exchange, education and research) programmes with a great variety of partners across the world;
- NWO and KNAW carry out bilateral and multilateral (strategic) research funding programmes with China, India, Brazil, Indonesia and in Africa. These programmes are complemented by science-driven cooperation programmes between different NWO divisions and partners across the world.

Please note that this overview is not comprehensive. For more information about specific policies or programmes, please contact the respective organisation directly.