In this printed annual report, the NWO executive board gives account for the year 2018 based on the performance indicators and the annual accounts. The report is mainly intended for NWO’s clients and its managerial relations in science. The annual report available for download from www.nwo.nl/annualreport.

NWO

The Dutch Research Council is one of the most important science funding bodies in the Netherlands and ensures quality and innovation in science. NWO invests almost 1 billion euros per year in curiosity driven research, research with respect to societal challenges and research infrastructure. NWO selects and funds research proposals based on the advice of experienced researchers and experts from the Netherlands and abroad. NWO encourages national and international collaboration, invests in large-scale research facilities, promotes knowledge utilisation and manages research institutes. NWO funds more than 7000 research projects at universities and knowledge institutions.

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The Hague, July 2019
In 2018, NWO published its new strategic plan for 2019–2022 after consultation with a large number of external parties.

With this strategy, we want to facilitate world-class scientific research in the coming years. This research has scientific and societal impact. We believe that maintaining the leading position of Dutch research requires not just a strong disciplinary basis, but more collaboration as well. Collaboration between scientific disciplines, between sectors and across the knowledge chain – from fundamental through to practice-oriented research – is the ideal breeding ground for surprising, new insights. In April, the Minister of Education, Culture and Science received a copy of the strategy.

The new strategy is, in effect, the substantive starting point for NWO after the transition we have just gone through. A prominent aspect of the strategy is the connecting role that we want to play within the Dutch knowledge landscape. A role that can clearly be recognised in the Dutch Research Agenda (NWA), for example. The NWA brings researchers from different disciplines, government departments, sectors and the entire knowledge chain – from fundamental through to practice-oriented research – together around important scientific and societal themes. Such co-creation, in which everybody can provide input about scientific problems and their elaboration, is unique in the world. We can now realise the NWA thanks to the extra funds that the Minister for Education, Culture and Science recently made available. The first calls for proposals were published in 2018. With the NWA, the Knowledge and Innovation Agendas from the top sectors and the policy agendas of government departments, we have a large number of funding instruments for important research teams with a large scientific and societal impact.

The importance that we attach to societal impact, alongside scientific impact, is also apparent from the introduction of the Stevin Prize in 2018. As is the case with the Spinoza Prize, the quality of the researcher is paramount for the Stevin Prize.
Whereas the Spinoza Prize focuses on the scientific work and fundamental problems, the Stevin Prize first and foremost honours the societal impact of the research. The first Stevin Prizes were awarded to Prof. Beatrice de Graaf and Prof. Marion Koopmans.

With the new strategy, NWO will also simplify the application system for research funding. This is necessary because research increasingly has a cross-disciplinary and international character. We have therefore harmonised the funding conditions for the different domains as much as possible. And the new scheme Money Follows Cooperation makes it easier to involve expertise that is not present in the Netherlands in a research project.

For many years, NWO has played a leading role in Europe in the area of Open Science and, in particular, Open Access. For example, we took the initiative to encourage all European countries to pose the same questions in their funding rounds with respect to how researchers deal with research data and how they make it accessible and usable for other researchers. I am pleased that the European Union and the European Research Council will use these criteria too.

The NWO institutes score very well with respect to scientific quality, societal relevance and viability. Each institute plays a role of national importance. This is clear from an external evaluation of the portfolio of NWO and KNAW institutes realised in 2018. I am proud of such an assessment. Yet at the same time, the continued existence of the NWO institutes depends on these outcomes. In 2019, we will further elaborate the recommendations from this evaluation together with the KNAW.

With the amalgamation of the former FOM institutes and the other NWO institutes, the NWO Institutes Organisation (NWO-I) has been fully operational since 2018. Unfortunately, the integration of NWO and ZonMw proved to be impossible for political reasons. We have therefore renewed the collaboration agreement with ZonMw. This agreement safeguards our ability to work together and jointly serve the entire breadth of science.

The new NWO is on track. We are proud that the strategy for the coming years has been warmly received. This points to the trust in our organisation as equally our plans for the coming years.

Prof. Stan Gielen
President NWO executive board
For NWO, 2018 is the fourth and last year of the strategy period 2015–2018. In this period, NWO has tirelessly focussed on its role as a connector of science, society and industry.

Funding of research questions

NWO’s goal is to facilitate and encourage excellent research with scientific and societal impact. One of the most important starting points for NWO is selecting the best researchers and research proposals. Partly as a result of this effort, the Netherlands continues to be an important player in the international research world.

In 2018, NWO invested one billion euros in the funding of scientific research and research infrastructure. This was largely spent on various programmes for talent, non-programmed research and research into societal and economic challenges. Part of this funding was allocated in consultation with ZonMw. A new aspect is the funds that became available in the context of the coalition agreement for the Dutch Research Agenda. In addition, NWO has a number of other programmes for research infrastructure, including institutes.

In total, 27 percent of all (pre-)proposals received in 2018 were awarded funding. This percentage is the same as the average award rate across the entire strategy period 2015–2018. However, the award rates differ for the various strategic funding instruments (see Table 1).
Table 1: Ratio number of (pre-)proposals and awards per strategic area

<table>
<thead>
<tr>
<th>Strategic area funding instruments</th>
<th>No. (pre)proposals*</th>
<th>No. grants awarded</th>
<th>Award rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>Talent</td>
<td>1469</td>
<td>1065</td>
<td>228</td>
</tr>
<tr>
<td>Free competition</td>
<td>1196</td>
<td>449</td>
<td>234</td>
</tr>
<tr>
<td>Research facilities and equipment</td>
<td>180</td>
<td>70</td>
<td>128</td>
</tr>
<tr>
<td>Societal challenges</td>
<td>659</td>
<td>464</td>
<td>304</td>
</tr>
<tr>
<td>Other**</td>
<td>584</td>
<td>400</td>
<td>239</td>
</tr>
<tr>
<td>Total 2018</td>
<td>4088</td>
<td>2348</td>
<td>1133</td>
</tr>
</tbody>
</table>

* The number of (pre-)proposals is the number of initial proposals submitted. These can be pre-proposals or full proposals. Pre-proposals are concise and take less of the researcher’s time. NWO assesses these pre-proposals for feasibility and advises the researchers about whether these should be elaborated into full proposals.

** “Other”: frequently small programmes aimed at internationalisation of knowledge utilisation including the collaborations with China, India and Brazil and visitors grants, as equally KIEM, Take-off and programmes from the Netherlands Initiative for Education Research and WOTRO.

Figure 1 illustrates the proportion of (pre-)proposals and the number of grants awarded per strategic goal relative to the total number of (pre-)proposals and grants awarded in 2018.

Figure 1: Proportion of proposals and grant awarded according to strategic goal

* “Other”: frequently small programmes aimed at internationalisation of knowledge utilisation including the collaborations with China, India and Brazil and visitors grants, as equally KIEM, Take-off and programmes from the Netherlands Initiative for Education Research and WOTRO.
Researchers and research projects

The grants awarded by NWO benefit, to a large extent, the appointment of scientific personnel (see Table 2). In 2018, NWO funded about 5800 FTE of scientific personnel at various research institutions, including universities of applied sciences.

NWO funded more than 7000 current research projects (see Table 3). Besides the research projects awarded funding in 2018, the number of current research projects also included research projects awarded funding in previous years, but which had not yet been completed or were only completed during the course of 2018.

Table 2: Scientific personnel (SP) and non-scientific personnel (NSP) (partly) funded by NWO

<table>
<thead>
<tr>
<th>FTE</th>
<th>SP</th>
<th>NSP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td>4.424</td>
<td>176</td>
<td>4.600</td>
</tr>
<tr>
<td>NWO institutes *</td>
<td>823</td>
<td>702</td>
<td>1.525</td>
</tr>
<tr>
<td>KNAW institutes</td>
<td>94</td>
<td>7</td>
<td>101</td>
</tr>
<tr>
<td>Other research institutions</td>
<td>478</td>
<td>71</td>
<td>549</td>
</tr>
<tr>
<td>NWO office</td>
<td>1</td>
<td>539</td>
<td>540</td>
</tr>
<tr>
<td><strong>Total 2018</strong></td>
<td><strong>5.820</strong></td>
<td><strong>1.495</strong></td>
<td><strong>7.315</strong></td>
</tr>
</tbody>
</table>

Explanatory note:
-* NWO institutes: these numbers include employees who are funded from the basic funding of the NWO institutes.
-**“Other institutions” includes universities of applied sciences, TNO, Max Planck Institute, Royal Netherlands Meteorological Institute, DELTARES, Netherlands Cancer Institute (NKI) and Naturalis Biodiversity Center.
### Table 3: Distribution of current research projects

<table>
<thead>
<tr>
<th>Distribution</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total universities</td>
<td>5,281</td>
<td>5,045</td>
</tr>
<tr>
<td>Total NWO institutes</td>
<td>125</td>
<td>122</td>
</tr>
<tr>
<td>Total KNAW institutes</td>
<td>114</td>
<td>111</td>
</tr>
<tr>
<td>Total other institutions</td>
<td>1,489</td>
<td>1,061</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7,009</td>
<td>6,339</td>
</tr>
</tbody>
</table>

### Publications and other results

The projects funded by NWO in 2018 yielded almost 14,000 scientific publications and other forms of output. Fifty percent of this output was published in Open Access journals and other Open Access scientific publications (see Table 4). This once again means an increase in the number of Open Access publications compared to previous years. At the start of the strategy period 2015–2018, this figure was just 19 percent of all publications (see Figure 2).

### Figure 2: Percentage Open Access publications

- 19.0% (2015)
- 34.3% (2016)
- 45.0% (2017)
- 50.3% (2018)
Some of the current research projects do not yet fall under the strict conditions that NWO set at the end of 2015 with respect to Open Access publishing. In the coming years, it is expected that, in line with the objectives of the Ministry of Education, Culture and Science and NWO, the percentage of research published in Open Access form will increase.

The trend over the past four years in the number of publications via Open Access expressed as a percentage of the total number of publications (see Table 4) is apparent from the figure n the previous page.

### Table 4: Publications and other output from NWO projects

<table>
<thead>
<tr>
<th>Publication type</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific journals/books *</td>
<td>8,655</td>
<td>7,680</td>
</tr>
<tr>
<td>PhD theses</td>
<td>419</td>
<td>392</td>
</tr>
<tr>
<td>Other **</td>
<td>6,047</td>
<td>5,626</td>
</tr>
<tr>
<td>Total</td>
<td>15,121</td>
<td>13,698</td>
</tr>
<tr>
<td>Of which published via Open Access</td>
<td>6,797</td>
<td>6,893</td>
</tr>
<tr>
<td>% of the total number of publications via Open Access</td>
<td>45,0%</td>
<td>50,3%</td>
</tr>
</tbody>
</table>

**Explanatory note:**

This overview details all output registered by the researchers. This is probably an underestimation of the actual numbers. NWO works together with VSNU, KNAW and SURF on the conditions needed for optimal registration.


** Other: patents, databases, editing positions, prizes, columns, poster presentations, conference papers, publications for a general public/professionals and other scientific contributions.

### Performance indicators

A substantial part of the funding for the NWO Domain Applied and Engineering Sciences (AES) comes from the Ministry for Economic Affairs and Climate Policy. As this funding is linked to specific valorisation objectives, NWO monitors the research funded for three performance indicators: knowledge transfer moment, joint publications and public relations efforts.
**Knowledge transfer moments**

A knowledge transfer moment is when a company or public institution actively uses results from a research project funded by NWO AES. Examples of knowledge transfer moments include patents and licenses, but also know-how, algorithms or methods. In 2018, knowledge transfer moment took place in 18 percent of current projects funded by NWO AES (compared to 16 percent in 2016).

**Joint publications and public relations efforts**

A second indication for the valorisation of research is formed by joint (peer-review) publications from researchers and industry, compared to the total number of publications in the same year. In 2018, 19 percent of the publications were joint publications: 73 of the total of 391 publications. In 2017, the proportion was 17 percent and in 2016 it was 11 percent.

In 2018, 61 valorisation outcomes from NWO AES research were reported on in the national media (compared to 58 in 2017). The national media reported on NWO AES policy and research on 152 occasions.
Organogram

Executive Board NWO

Domains

Applied and Engineering Sciences
The Netherlands Organisation for Health Research and Development
Science
Social Sciences and Humanities

NRO — Temporary Taskforce
The Netherlands Initiative for Educational Research

Taskforce for Applied Research SIA — Temporary

WOTRO Science for Global Development
Cross domain

NWO Institutes

AMOLF
Physics of functional comp

ARCNL
Advanced Research Center for Nanolithography with UvA, VU and ASML

ASTRON
ASTRON Netherlands Institute for Radio Astronomy

CWI
Centrum Wiskunde & Informatica

DIFFER
Dutch Institute for Fundamental Energy Research

Nikhef
National Institute for Subatomic Physics

NIOZ
NIOZ Royal Netherlands Institute for Sea Research

NSCR
Netherlands Institute for the Study of Crime and Law Enforcement

SRON
SRON Netherlands Institute for Space Research

Other

DANS
Data Archiving and Networked Services with KNAW

NLeSC
Netherlands eScience Center with SURF