

Vital links

The future of applied research





Summary

Applied research is concerned with finding solutions to practical problems and issues confronting society. It is essential for strengthening the innovative capacity of industry, for tackling challenges relating to social renewal and for improving the quality of government policy. Much of this research is carried out by public research organisations (PROs), publicly funded organisations which are outside the academic research world and which combine research on specific topics with delivering knowledge-intensive services. This report considers three groups of PROs: applied research organisations, government research institutes, and foundations which develop knowledge for government and civil-society stakeholders.

The applied research system in the Netherlands is under pressure. Declining public investment, an increasing tendency to focus on short-term issues and the lack of a clear substantive mission have meant that PROs have done too little in recent years to renew their strategic knowledge base. In addition, applied research has for some time no longer been the exclusive preserve of PROs, as universities and universities of applied science develop their own valorisation activities and new partnerships are forged between universities, universities of applied science and industry.

Against this background, in this report the Advisory Council for Science, Technology and Innovation (AWTI) addresses the following question:

What should be the Dutch government's strategy for publicly funded applied research?

AWTI notes that the Netherlands is losing its capacity to develop practical solutions for economic and societal challenges. PROs, universities, universities of applied science and industry are failing to adequately bring together research and innovation capacity within long-term, stably funded organisational structures with sufficient size and mass. There is an inability to address major, complex challenges, including necessary transitions, for example in relation to sustainable energy, the circular economy and healthcare, on an adequate scale and for a sufficient length of time.

The economic and societal changes facing the Netherlands demand a diversity of competencies and infrastructures. These can be found within different types of organisations, including PROs. It is important in this context that each PRO develops a cohesive package of core competencies based on a clear mission. Where complementary competences are needed, cutting across the boundaries between disciplines and themes, organisations need to seek collaboration.

To a large extent, the initiative for improvement lies with PROs. They cannot afford to rest on their laurels; based on their mission, it is essential that they instil more focus in their portfolio of core competences and invest in maintaining and renewing their knowledge base. They must work together more intensively both with each other and with others, in order to contribute to the strengthening of the competitiveness of Dutch industry and tackling the challenges facing society. If PROs are unable to deliver the necessary competencies and to collaborate more intensively, this could in time lead to a shake-up of the system. However, AWTI does not regard such a restructuring as a starting point for achieving the necessary changes.

That said, AWTI advises the government to ensure that the vitality of the applied research system is improved, so that public research organisations are able based on their mission and specific competences to provide evidence-based support for government policy, to address societal challenges and to strengthen the competitiveness of Dutch industry. To this end, AWTI makes the following recommendations.

Recommendation 1

Make clear what the government expects from PROs

Ensure that the various line ministries clearly articulate the role of PROs in relation to policy support, innovative capacity and societal challenges. To this end, ensure that the distribution of tasks and responsibilities between the Ministry of Economic Affairs, the Ministry of Education, Culture and Science and the line ministries is fit for purpose. Invest more in subject expertise in the line ministries so that they are able to provide a better steer for research. Encourage more collaboration between ministries on shared themes. Set clear boundaries within which PROs must remain when carrying out private contract research, including the basis for setting fees.

Recommendation 2

Ensure that PROs make choices and promote their core competences

Require PROs to clearly formulate and define the public interests served by their research. Ensure that they work in consultation with stakeholders when making the necessary choices regarding their focus, core priorities and profile, with an eye for complementarity with the other actors in the system. Encourage PROs to develop, maintain and renew a cohesive package of competences. Make government funding conditional on a properly substantiated profile.

Recommendation 3

Invest in a strategic knowledge base for applied research

Ensure stable, long-term funding to support continuity in the development of strategic research capacity. Invest at least 330 million euros extra per year in this, to be spent as

follows: i) 150 million euros for the development of research capacity (knowledge and expertise development) at PROs in fields that are crucial for applied research in the future; ii) 50 million euros on research facilities for applied research, in combination with facilities for fundamental research; iii) 130 million euros for applied research at universities of applied science and for the development of joint innovation campuses.

Recommendation 4

Focus on positioning and collaboration

Encourage research institutes to position themselves on the basis of their mission and their cohesive package of specific core competences, and to collaborate with other institutions from the basis of that positioning. Ensure that differences between funding instruments do not create an impediment to collaboration. Fund partners in this collaboration based on the core competences they bring to the table rather than on their position in the system. Ensure that PROs work with each other and with others to develop, manage and make available research facilities. Develop innovation campuses for applied research where universities of applied science, PROs and universities can organise joint valorisation activities, offer facilities and experimental platforms and respond to the needs of the SME sector. Facilitate temporary appointments and exchange programmes. Expand the scope for in-kind contributions in public-private partnerships.

Recommendation 5

Set up 'mission-driven research and innovation consortia'

Set up between five and ten large, mission-driven research and innovation consortia, in which PROs work in partnership with other research institutes, businesses, civil-society organisations and government on large, complex transitional projects. Task each of these consortia with knowledge and innovation assignments in relation to specific transitions which require input from a variety of disciplines, organisations and sectors, which have a long time horizon and which require public and private commitment. Invest a total of 200 million euros per year in this. Enter into agreements with partners with a minimum term of five years, setting out the details of the governance, organisation, funding and ambitions of the consortia.