

Summary

Dutch Technology Pact

2020



TECHNIEKPACT

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DUTCH TECHNOLOGY PACT 2020

The Netherlands is a world-class player. When it comes to competitiveness, innovation, scientific research and education, we still rank among the front runners in international comparisons despite the economic downturn. This excellent position is attributable to the high skill levels of our working population. The Netherlands aims to retain its position among the front runners, but this will require sufficient numbers of smart and highly skilled technical people. Because whether we are talking about healthcare, the energy supply, construction, industry, ICT, food production or our main ports, technology is absolutely essential.

More technical minds needed

In the period to 2020, more than 70,000 construction workers, installers, electricians, metal workers, engineers and system analysts will be retiring each year. And each year, the education system produces tens of thousands of skilled people to take their place. Yet this is not enough. To be able to compete internationally and to take advantage of market opportunities, the Netherlands needs more highly skilled technologists. They are needed at all levels, because businesses in promising industries, such as energy, horticulture, chemicals, life sciences and health have thousands of challenging jobs for hands-on vocational graduates as well as for talented academic researchers.

In recent years, many valuable initiatives have been launched across the regions and across the top sectors, including the Oefenfabriek (industrial hands-on training centre) in Brielle, the Technum (technology training centre) in Vlissingen and the Seaports Xperience Centre in Groningen. We now need to expand and pick up the pace, and this was the impetus for agreeing this Technology Pact.

Technology Pact

Despite all the existing initiatives and plans, the number of technology graduates is not increasing fast enough. Analyses by the Research Centre for Education and the Labour Market (ROA) show that we will need to produce 30,000 additional technology graduates a year to meet the growing demand for skilled technologists. This requires additional efforts. Education providers, employers, workers, young people, the top sectors, and regional and central government have therefore agreed a national Technology Pact. The Technology Pact unites the ambitions of the existing plans and initiatives, but aims to achieve them more quickly (by 2020) and with increased vigour.

To achieve its aims, the Technology Pact will focus on three lines of action lines with a horizon of 2020:

- Going for technology: more school pupils choosing to study in the field of technology.
- Learning in technology: more school pupils and students with a technical qualification progressing to a job in technology.
- Working in technology: retaining technology workers in the technology sector, and finding alternative jobs in technology for people with a technology background whose jobs are under threat or who have been marginalised.

The principles of the Technology Pact

The Technology Pact has three essential principles:

- **Implementation within the regions and sectors** will be crucial for its success. The Technology Pact will contain (national) arrangements that support the regions, the technology industries and the top sectors to achieve their own objectives.
- **Cooperation between the world of education, the business community and workers** is the key to appealing technology education that offers a seamless transition to the labour market. The business community, employers, the world of education (state-funded and private), school pupils and students, the regions and central government will all have a contribution to make to the Technology Pact.
- **Technology education across the board** forms the foundation for a healthy labour market for technology graduates. The pact encompasses primary education, secondary education, vocational education, higher education and professional development for those in work.

Science, technology, technologists? Clarification of the terms used

The Technology Pact uses the term **technology** in a broad sense to include the fields of technology and the exact sciences. The Technology Pact fits in with the scope of the Science and Technology Master Plan ('Masterplan Bèta en Technologie'), which defines **technologists** as people who make 'practical' or real use of one or more technologies. They work, for instance, as lab technicians, researchers, instrument makers, ICT professionals, planners, industrial designers (creative), plumbers, engineers, operators or analysts. They have the technical expertise to build devices and maintain installations. They keep technical systems running, and develop and implement new technologies. They seek out new scientific knowledge. They can form interdisciplinary combinations (exact science/exact science and exact scientific/social science) and transform knowledge and technology to useful innovations in a variety of fields, such as healthcare, food, energy and ICT.

Consequences of labour market shortages of technologists

The shortage of highly skilled technologists is set to increase in the years ahead. The reasons for this are varied. A large cohort of older workers is due to leave the labour market, and too few young people are going on to choose technology-related studies. Furthermore, too few graduates from the technology study programmes are actually finding work in a technology job. The quality of education can be further improved with the intensive involvement of the business community, internships, specialist teachers in classrooms and the provision of machinery to vocational colleges. There are also workers with a technical background who have been marginalised or are at risk of being marginalised. And at the same time, the demand for technology workers in certain sectors is outstripping supply. This situation is economically unsustainable and socially unacceptable.

Because of labour market shortages in certain sectors, we need to find workers from outside the Netherlands. But this will only help to a limited extent. Labour market shortages can also lead to upward pressure on wages. While this may make it more appealing to find a job in technology, higher wage costs could harm the competitive



position of the Netherlands and economic activity could move to other countries. The Netherlands would then also lose its appeal as a place to establish businesses, and foreign investment could reduce. All of this constitutes a threat to finding innovative solutions to issues such as the energy supply, food production and sustainability. It also puts pressure on the growth ambitions of Dutch businesses and hence on economic growth in the Netherlands.

Going for technology

Many young people do not choose technology because they do not have a clear idea of what 'technology' is. They often harbour prejudices: technology is boring, difficult, complex, or you'll have to get your hands dirty. To change this unclear perception, primary schools, secondary schools and business will be taking action in the years ahead to give all children aged 4 to 18 a challenging technology education. The aim is to create enthusiasm among pupils for technology by stimulating their curiosity and showing them the importance of technology in an appealing way. In addition, technology education should also offer pupils opportunities to discover and further develop their technical talents and skills. The intended activities will focus not only on the children themselves, but also on the parents given their crucial role in the decision-making process. Teachers with knowledge of the world of business will be crucial in offering children an inspiring technology education. An important point to consider is therefore the initial training and ongoing professional development of present and future teachers.

Examples of measures:

- By 2020, all 7,000 primary schools in the Netherlands will have science and technology on their curricula.
- The government will make available a one-off sum of €100 million to get more science teachers into secondary schools and to allow teacher training programmes to devote more attention to technology. From 2014, technology will be a compulsory subject on teacher training programmes.
- The organised business community will establish an online technology education portal (techniek-onderwijs.nl). The portal will:
 - allow primary schools and secondary schools to register a need for support from the business community for their technology teaching either on site or in the classroom;
 - enable young people studying technology-related fields to find an internship or combined work-study place;
 - enable vocational schools to find a specialist teacher or guest teacher from within industry;
 - enable schools to find internships for their science teachers.

Learning in technology

Young people who choose to study in a technology-related field must stay motivated if they are to complete their studies. But just as important is that they also choose a technology job once they have finished their studies. The Technology Pact therefore includes action to strengthen technical vocational education, with an emphasis on more intensive cooperation between study programmes and the business community. The quality of the education and the extent to which it provides a good transition to the labour market will sink or swim with the involvement of the business community and a good practical component in vocational programmes.



The Netherlands also needs outstanding academics. For Dutch students, the lights are on green: enrolments at universities in science and technology programmes rose by almost 75% between 2000 and 2010. For girls the increase was actually almost 135%. What is important for university study programmes are the ambitious targets that the three universities of technology have agreed in the Technology Sector Plan ('sectorplan Technologie') on educating sufficient numbers of highly-skilled engineers, technical designers and researchers. In addition, the Technology Pact also wishes to take opportunities to attract and retain more international students. At present, only 7% of international students in the Netherlands choose a technical study programme and only 27% of these stay in the Netherlands for their first job once they have completed their studies.

Examples of measures:

- An investment fund will be created in which central government, employers and the regions will each contribute €100 million to invest in public-private education partnerships within the region. Businesses will contribute by releasing staff for guest teaching sessions, by investing in joint study programmes or by providing vocational schools (VMBO and MBO) and universities of applied sciences (HBO) with technical installations, work placements, laboratories or machines.
- In the future, schools offering senior secondary vocational education will continue to receive higher funding for students following technology programmes.
- Businesses will offer internships or combined work-study places to all students following a technology programme (MBO).
- Businesses in the designated top sectors will make 1,000 scholarships available annually for technology-related study programmes at the universities of applied sciences and research universities with the aim of improving and increasing the enrolment of talented technologists.

Working in technology

The technology sectors and the top sectors are the most dynamic sectors of the economy. Technologies develop at a rapid pace and economic growth and decline have an immediate impact on the revenues of businesses. This dynamic process also has a major impact on workers: knowledge quickly becomes outdated and economic downturns can lead to unemployment.

This means that smart investments are needed to retain skilled workers for the business, for the industry and for technology. The measures that the social partners for the technology sector advocate together with central government and the regions are aimed at the sustainable employability of workers so businesses can retain them for as long as possible. And if this does not work, to examine other opportunities within the sector or within another technical sector.

Examples of measures:

- Social partners in the technology sector will produce plans for the sector in the second half of 2013. These plans will be aimed at reducing wastage of (young) workers, accelerated re-entry of qualified technologists who have recently become unemployed, upgrading knowledge, ongoing training, and the coaching of new recruits by experienced staff.
- To boost training and schemes to help redundant workers find alternative work, the government has earmarked €300 million to co-finance the plans for the

sector. They will also make it easier for the unemployed to retrain for a job in the technology sector while keeping their unemployment benefit.

- All five regions of the Netherlands have their own Technology Pact.

What will happen with the existing initiatives?

The Technology Pact builds on existing analyses and plans, such as the Science and Technology Master Plan, the sector plans for Technology in senior secondary vocational education (MBO) and higher professional education (HBO), regional technology pacts, such as the Brainport Technology Pact, the Haaglanden Technology Pact and the Twente Technology Pact, and the Human Capital Agendas of the designated top sectors.

Who is involved in the Technology Pact?

The Technology Pact is a joint initiative of central government, the organised business community, the trade unions, the education community and the regions. Participants are the Ministry of Economic Affairs, the Ministry of Education, Culture and Science, the Ministry of Social Affairs and Employment, the Confederation of Netherlands Industry and Employers (VNO-NCW), MKB Nederland, FME Association, Metaalunie, the top sectors, the technology industries, FNV, CNV, PO-Raad, VO-Raad, the Netherlands Association of VET Colleges, the AOC Council, the Netherlands Association of Universities of Applied Sciences, the Association of Universities in the Netherlands, 3TU.Federation, NRTO, Interstedelijk Studenten Overleg, the five regions (North, East, Southeast, Southwest Wing and Northwest Wing).

Governance and implementation of the Technology Pact

The focus of the implementation - and the key to success - will lie in the regions. The implementation structure will therefore be built within the regions, complemented by arrangements for the implementation of measures at the national level.

The National Technology Pact Coordinating Group ('Landelijke Regiegroep Techniekpact') coordinates, tracks and monitors the implementation of the national strategy, the objectives and the arrangements agreed in the Technology Pact. The coordinating group is composed of representatives from the five regions, central government, employers, workers, the top sectors and the education community.

This is a summary of the Technology Pact. For the full text and information on all measures, please refer to www.technologypact.nl.