

Dutch Digitalisation Strategy

Getting the Netherlands ready for the digital future

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Summary

Digitilisation is transforming economies and societies around the world at a rapid pace. The Netherlands is in an excellent position to capitalise the associated economic and social opportunities. The digital infrastructure is world-class, the workforce is well educated and we have a tradition of cooperation, such as between businesses, knowledge institutions and the government. At the same time, digitalisation also raises new, fundamental questions, for example about protecting our privacy and the future of our jobs.

To make use of the opportunities offered by digitalisation and to provide answers to these questions, the Netherlands must lead the way with research, experiments, and the application of new technology. In this way, we will strengthen Dutch earning capacity, be able to give better direction to technological developments and make full use of the economic and social opportunities offered by digitalisation.

In order to be at the forefront, we also need to increase trust of citizens and businesses. To this end, we are strengthening the foundation for digitalisation, amongst others in the field of privacy protection, cybersecurity, digital skills and fair competition. The challenge in this transformation is to get and keep everyone on board, not only on the labour market, but in society as a whole.

The government is therefore committed to a two-pronged approach:

1. Leveraging social and economic opportunities (acceleration)

An important part of digitalisation is taking place in social sectors in which the government plays a relatively large role. This includes healthcare, mobility, energy and the agri-food sector. The digitalisation of public administration itself is also an important task. The challenge for the government is to speed up and support the digital transition in these sectors.

Policy area	Ambition/guiding principle	Actions
Digitally skilled SMEs	The government supports SMEs in the transition to a digital economy.	The programme Accelerating the digitalisation of SMEs (Versnelling digitaliserende mkb) will be published before the summer.
A progressive and flexible industry	By 2021, Dutch industry will have Europe's most flexible and best digitally connected production network.	With the Smart Industry Implementation Agenda (Implementatieagenda Smart Industry), we are promoting the digitalisation of Dutch industry.
A transparent and accessible e-government	Information, government services and new technologies are accessible to everyone.	An ambitious, broad agenda for the digitalisation of public administration will be sent to Dutch parliament around the summer.
Smart and sustainable mobility	An integrated mobility system in which the user and their movements are central. The Netherlands is the global test site for smart mobility.	Before the summer, the government will send out a letter about Smart Mobility developments on the road. A Digital Transport Strategy will be drawn up before the end of 2018. The aim is to improve the interconnectedness of the transport sector.
Using digitalisation to improve quality of life	The Netherlands benefits from digital opportunities to improve people's quality of life, remain healthy and self-reliant for as long as possible and to help decide on the healthcare we need.	The innovative capacity of the healthcare system will be increased, and awareness, knowledge and competences will be strengthened.
Sustainable and safe food supply	Digitalisation will make an important contribution to people, planet and profit, such as increased food safety and reducing the environmental impact of agriculture.	We will invest in programmes to make agriculture more sustainable by means of digital technology.
A flexible energy system	Developing flexible energy networks, which will play an important role in making efficient use of the energy system and reducing the costs of the transition.	We are looking into ways in which energy data can be made more widely available, while the customer retains control over their data.

2. Strengthening the foundation (basic conditions)

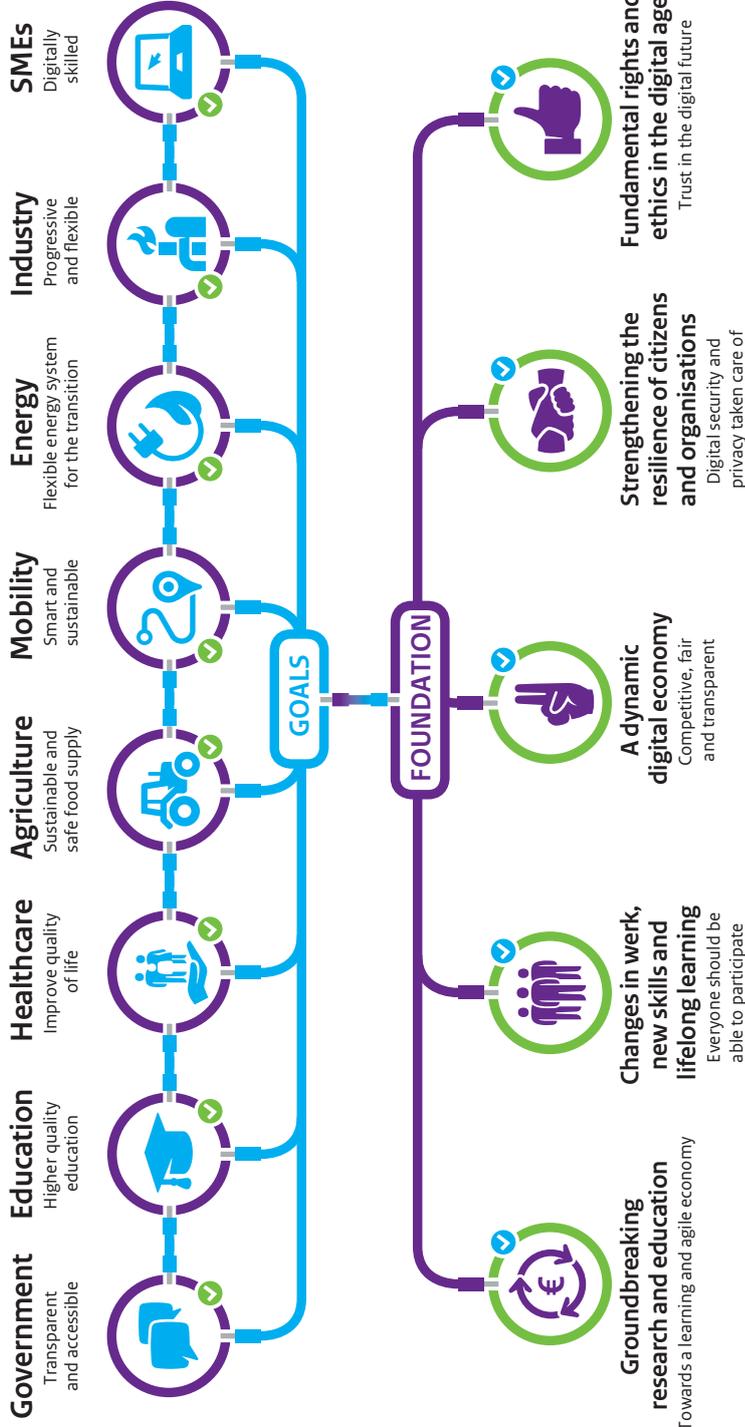
The foundation for digitalisation – including privacy protection, cybersecurity, digital skills and fair competition – must be strengthened further. The government will focus on five key focus areas such that citizens and businesses can take advantage of the opportunities offered by digitalisation.

Theme	Ambition/guiding principle	Actions
Groundbreaking research and innovation		
A strong national base for knowledge, research and innovation	The Netherlands is actively contributing ideas, participating and benefiting and is a co-decision-maker with regard to the future direction of digitalisation. This requires a high level of knowledge and cooperation between research universities, universities of applied sciences, other knowledge institutions, the business community and government bodies.	<ul style="list-style-type: none"> • As a key enabling technology ICT will have a central role in the renewed Top Sector Policy. • We are working on public-private partnerships in the field of big data analysis, cybersecurity, blockchain, artificial intelligence, 5G and quantum computing. • We are initiating an internationalisation approach focused on trade facilitation, international cooperation and strategic acquisition. • We are looking to maximise interconnections between the National Science Agenda (<i>Nationale Wetenschapsagenda</i>), the Digital Society Research Agenda (<i>Onderzoeksagenda Digitale Samenleving</i>) of the Association of Universities in the Netherlands (VSNU), the action lines of Team ICT and the various departmental agendas.
Innovation-friendly, future-proof legislation	Laws and regulations should not impose unnecessary restrictions on innovation.	<ul style="list-style-type: none"> • A contact point will be set up where businesses can report obstacles to digital innovation in laws and regulation. • Testing and experimenting at test sites will be made easier.
Changes in work, new skills and lifelong learning		
Up-to-date curriculum in education	Young people should have good basic ICT and information skills and are media literate.	In the curriculum for primary and secondary education, attention will be paid to digital literacy and practical skills to better equip pupils for the future.
Adequate basic level of digital skills	Everyone can participate in the digital society.	We are working on training initiatives for people with limited digital skills.
A learning workforce	People can keep developing themselves, so that they can continue to do their work well and with pleasure in a changing environment.	Before the summer, the government will present an action plan for a breakthrough in the field of lifelong development.
Sufficient ICT professionals	Companies should be able to find sufficient well-qualified staff.	Further development of the Human Capital Agenda ICT and continuation of the Technology Pact (<i>Techniekpact</i>).
Clarity about working via platforms	Providing better support to people in finding the right employment relationship and giving employers a clearer framework.	<ul style="list-style-type: none"> • The government carried out a survey on the position of employees carrying out work via platforms and recently sent it to Dutch parliament. • In the coalition agreement, measures were announced to provide more clarity for the self-employed and employers, and to prevent pseudo self-employment.

Theme	Ambition/guiding principle	Actions
A dynamic digital economy		
Competitive markets	Markets remain competitive such that the digital economy remains fair and competitive.	There will be an investigation into the extent to which current competition regulation still meets the requirements and an analysis of various instruments to keep markets competitive.
Fair relationships	Platforms must behave fairly towards suppliers selling on these platforms.	Commitment to transparency between platforms and businesses about terms and conditions, dispute resolution and search results, also in Europe.
A thriving data economy	The Netherlands is the best at sharing data within and between sectors.	<ul style="list-style-type: none"> • We will explore open, cross-sectoral agreement for responsible and voluntary sharing of data between companies. • The government will develop a vision on data sharing. • Government data will be made more accessible.
A world-class digital infrastructure	Maintain international leadership in fixed and mobile communications networks.	Before the summer, a Digital Connectivity Action Plan (<i>Actieplan Digitale Connectiviteit</i>) will be published to make 5G technology widely available, among others.
Strengthening the resilience of citizens and organisations		
A safe and secure digital society	People and businesses should be able to use digital technologies safely.	<ul style="list-style-type: none"> • In April, the government published the Dutch Cyber Security Agenda, together with the associated 'Roadmap for digitally secure hardware and software' (<i>Roadmap Digitaal Veilige Hard- en Software</i>). • The Digital Trust Centre will provide companies with up-to-date information and concrete advice in the event of cyber threats. • This year, the Ministry of Defence will be renewing its Cyber Strategy.
Protection and control of personal data	People should be able to rely on their privacy being well protected online and have control of their personal data.	<ul style="list-style-type: none"> • The government is actively involved in the formulation and implementation of an ambitious EU ePrivacy Regulation. • Within this government's term, the 'Taking Control of Data' (<i>Regie op Gegevens</i>) programme will provide clear frameworks for personal data management.
Effective protection when buying online	Digital consumers should be able to take informed decisions about the products they buy.	Stronger disclosure requirements and greater transparency on platforms regarding the identity of suppliers.
Fundamental rights and ethics in the digital age		
Trust in the digital future	Safeguarding public values and human rights remains of crucial importance in this digital age. Therefore, they must be included in the development and use of data and algorithms.	<ul style="list-style-type: none"> • The government has asked the Scientific Council for Government Policy (WRR) for advice on the opportunities and threats associated with artificial intelligence. • A working group will be set up to deal with the ethical issues surrounding digitalisation and will, where necessary, propose concrete follow-up actions.
Cooperation and dialogue	A broad social dialogue on new ethical issues is desirable.	The government is organising and stimulating dialogues on technological developments.
Reliable information and content on online platforms	An open information society in which the democratic rule of law is protected and in which online illegal activities are tackled quickly and sustainably.	Additional resources have been made available for investigative journalism.



Dutch Digitalisation Strategy



Chapter 1. The Netherlands as digital leader

Getting the Netherlands ready for the digital future

Digitalisation is transforming our economy and society at a rapid pace. This is a global development, with digital technologies - such as big data analysis, artificial intelligence, blockchain, 3D printing, cloud storage and computing, and the Internet of Things - being used in an increasing number of fields. Digitalisation is the most important source of growth, innovation and new business activities. Furthermore, digitalisation is necessary to solve the social challenges of our time, such as rising healthcare costs, increasing traffic congestion or ensuring sufficient, healthy and sustainably produced food.

Digitalisation is also transforming our daily lives. We can shop online, do business with the government online, work remotely, do online banking and submit our tax return online. Internet platforms, such as Google, Bol.com, Booking.com and Marktplaats, offer major advantages, for example better access to knowledge, easier and faster communication and new opportunities for businesses and consumers to offer products and services in the Netherlands and abroad.

The Netherlands is in an excellent position to capitalise on the economic and social opportunities created by digitalisation. We have a world-class digital infrastructure. Wi-Fi and Bluetooth were invented in the Netherlands. The AMS-IX, one of the most important internet exchange points in the world, is located in our country. The Netherlands has a highly educated workforce at an international level and Dutch consumers often lead the way in embracing new digital applications. We also have leading companies in the Netherlands such as Booking.com, TomTom, Adyen, NXP, Coolblue and WeTransfer. Moreover, we have a long tradition of cooperation between companies, scientists and governments. This has contributed to the emergence of innovative clusters all over the Netherlands.

Digitalisation also raises new, fundamental questions, for example about the protection of our privacy, the future of our jobs, our cybersecurity, the market power of digital platforms, who has access to data, what information is reliable, how new technologies can be used ethically, how our democracy functions and how to ensure that people and businesses can keep up with this transformation.

Digitalisation is changing our world, but this does not mean that we have no control over these changes. Previous technological transformations have taught us

that countries that are at the forefront of the application of new technologies are often also the most prosperous afterwards and are best able to deal with risks.

1.1 Ambitions and goals



▶ WHAT IS IN THE COALITION AGREEMENT?

The coalition agreement contains the necessary ambitions and actions with regard to digitalisation:

- We can become Europe's digital frontrunner.
- Digitalisation is needed in areas such as healthcare, mobility and public administration.
- We are reinforcing necessary basic conditions such as digital security, privacy, digital literacy, competition, innovation and the modernisation of legislation.
- We are committed to further strengthening the European digital single market.

If the Netherlands wants to make the most of the opportunities offered by digitalisation and tackle problems effectively, we will need to innovate and accelerate. In line with the coalition agreement, the government therefore wants the Netherlands to become the digital leader in Europe. We are fully committed to the opportunities offered by the new economy and information society. From energy transition to affordable healthcare and from excellent logistics and mobility to a sustainable food supply, digital technologies play a key role in achieving breakthroughs in all these areas. Take, for example, the possibilities offered by care robots, smart traffic lights and electricity grids, and drones for precision agriculture.

With this Dutch digitalisation strategy, the government is giving further substance and direction to these challenges. In doing so, we will focus on three ambitions:

1. Leading the way and taking advantage of opportunities. We aim to become Europe's digital leader. We want the Netherlands to be a pioneer and testing ground in the field of digital innovation, a place where companies from all over the world can responsibly develop and test new applications. And the place where successful innovations are subsequently rolled out across the country. In this way, we want to contribute to a society with fewer traffic jams and better mobility, a society where we use our energy more efficiently, where food is produced more safely and sustainably and where people can live longer lives, independently and in good health. This will also strengthen Dutch earning capacity and enables us to give better direction to technological developments.

2. Everyone can participate and we work together. With a rapid development like digitalisation, it is important to get and keep everyone on board, both on the labour market and in society as a whole. This will require everyone to learn basic skills as soon as possible and continue to learn and develop in later life so they can adapt to changing occupations and tasks. It is also important for us to continue to support vulnerable groups. The government wants everyone to be able to participate and benefit. This also means that our approach will involve intensive cooperation with companies, knowledge institutes and civil society organisations.

3. Trust in the digital future. Digitalisation is transforming our economy and society, but not the values that we continue to share. For the government, it goes without saying that values and fundamental rights such as safety, the protection of privacy, self-determination, fair competition and accessible and good public administration will continue to be guaranteed in the digital age. Trust is the foundation of the digital transformation. We need to be able to trust that our data are secure and that digital technology is used with care. As far as we are concerned, these are the proverbial safety barriers for the digital transformation.

The Netherlands can maintain its strong international position and stand out from the competition by being progressive and innovative, nurturing public-private partnerships and having an eye for issues such as inclusiveness, safety and security and privacy protection. The Netherlands is ready for the digital future!

1.2 Approach

For the first time, the government is presenting a single joint strategy in the area of digitalisation. This is essential, because this transformation will have an impact on almost all policy areas – from *e-health* to smart mobility, from education to safety and public administration. By working together, we can strengthen the exchange of knowledge and best practices, and this will save us from continuously reinventing the wheel and coming up with conflicting legislation.

The government wants the Netherlands to lead the way in the application of new technology. This means that we need to be at the forefront of research, experimentation and implementation, while maintaining the trust of our citizens and businesses. That is why we are strengthening the foundation for digitalisation, in the field of privacy, cybersecurity, digital skills and fair competition, among other things.

In order to do so, we will be focusing on two tracks:

Track 1: Leveraging social and economic opportunities

An important part of digitalisation takes place in social sectors where the government has a relatively large role. This includes areas such as healthcare, mobility, education, energy and the agri-food sector. The further digitalisation of public administration itself is another important challenge. The challenge for the government is to accelerate and stimulate the digital transition in these sectors. We do this by targeted programmes and in cooperation with companies, knowledge institutions and local and regional authorities, among others. In summary, we are fully committed to the social and economic opportunities of digitalisation.

Track 2: Strengthening the foundation through five key focus areas

- i. Groundbreaking research and innovation:** the development and application of high-quality knowledge about digital technologies and services is essential for the Netherlands' competitiveness and earning capacity. This also contributes to solving social issues.
- ii. Changes in work, new skills and lifelong learning:** digitalisation and robotisation have far-reaching consequences for the labour market. On the one hand, they offer opportunities for new jobs and work that is less physically strenuous. On the other hand, some jobs will disappear, and it is uncertain how the changes will affect different groups of people in the future. It is therefore very important that people have excellent skills, both digital and otherwise. This is to avoid a division in society between those who can take advantage of opportunities and those who cannot.

- iii. **A dynamic digital economy:** data are the input for the new economy. We want to make the most of the opportunities this offers. High-quality connectivity is a basic prerequisite for this. At the same time, the growing importance of data raises questions and concerns about data access and control, and there are concerns about the power of large platform companies.
- iv. **Strengthening the resilience of citizens and organisations:** everyone must be able to use the opportunities offered by digitalisation safely and must not be afraid to do so. The government wants to make citizens and businesses resilient and protect their digital security and personal data.
- v. **Fundamental rights and ethics in the digital age:** the digital transformation raises fundamental questions, for example about the influence of algorithms on autonomy and equal treatment. These important issues should not be overlooked. The government has set itself the task of working with the people concerned on practical frameworks and solutions.

1.3 A shared assignment

The government cannot do this on its own. If we want to make the most of the opportunities offered by digitalisation and effectively combat any negative effects, intensive cooperation will be required with other governments, businesses, civil society organisations and knowledge institutions.

The government will take the lead in this and give direction to technological developments at an early stage. A good example is the establishment of the National Blockchain Coalition (*Nationale Blockchain Coalitie*). Through this, the government cooperates with knowledge institutions and companies from various perspectives (innovation, legal, knowledge, skills) to stimulate the application of a specific technology in the Netherlands and worldwide, and thus seize opportunities. The advantage of this is that, at an early stage, attention is also paid to public values such as privacy and security.

This also places new demands on the way in which the central government organises itself. Dealing with digitalisation requires a fundamentally different view and focus on the government's competences. Digital knowledge and skills must become one of the government's core competences at all levels. Moreover, the government needs to become more agile. This means that we must invest in our innovative strength with a solid knowledge and research agenda, work together intensively and make more room for experiments. We must work in small steps and apply and scale up smart solutions more vigorously. In doing so, we must make use of the knowledge available in

society, and it is important that policy and legislation is sufficiently adaptive to respond to changes.

This makes digitalisation an essential and inseparable part of the policy objective of every minister. Each minister is responsible for its own area and will start working on the issues at play there.¹ At the same time, we must support each other where possible and necessary.

1.4 Action levels: local, national, European, international

Digital technology is blurring geographical distance. On the Internet, it is just as easy to order something from a nearby store as it is to order it from a webshop on the other side of the world. In the future, it will be ever easier to perform one's work from a variety of different locations. It will even become possible for specialist activities such as medical operations by doctors to be carried out remotely.

At the international level

This means that both opportunities and problems can come from anywhere in the world. It also means that other countries will be confronted with almost exactly the same issues as the Netherlands. For this reason, the EU, the G20 and the Organisation for Economic Cooperation and Development (OECD), for example, are working on a uniform approach to artificial intelligence. And we are formulating agreements on global e-commerce in the World Trade Organisation (WTO).

The Netherlands is also investing in dialogue with countries that are responding to the issues around digitalisation in a fundamentally different way, and in doing so is engaging with like-minded partners in order to convince others to join international agreements, for example within the UN system. Furthermore, the Netherlands is actively participating in international dialogue with broad groups of stakeholders on the impact of technology on international law and legal issues. Examples of such issues are the application of the right to privacy in the digital age and dealing with jurisdiction issues while preserving the open and free internet.

¹ The extra financial resources required for these tasks are part of the relevant departmental budget and/or have been announced in the coalition agreement. See also: <http://www.rijksbegroting.nl/2018/overzicht/begrotingsstaat>.

At this moment, trade agreements are the most efficient way for the European Union to reach agreements on digital trade. The digital economy is addressed in several EU trade agreement negotiations with non-member countries (e.g. Australia, New Zealand, Chile and Mexico). Europe aims to promote the free movement of data worldwide and at the same time ensure that personal data and privacy are protected just as well outside the EU as they are within the EU.

At the European level

A considerable portion of the policy and legislation in the digital field is adopted within the European Union, including in the area of free movement of data between EU countries, strong unambiguous privacy legislation, copyright, joint research programmes and a joint approach to cybersecurity and platforms. Therefore, Europe is a crucial in this context. In this process, we have to keep the impact of such measures on SMEs and innovation in mind, such as through a SME-Test of new regulation. The government is also committed to a strong (digital) single market. Important steps have already been taken in this area in recent years. The government is committed to completing the current initiatives of the European Commission as much as possible in 2018.

At the same time, it is clear that there remains much to be done. That is why, with a view to the new Commission that will take office in 2019, the Netherlands wants to discuss the important issues that digitalisation raises at European level, so that we can act together where possible. The government's efforts will be in line with this Dutch strategy: European citizens and businesses must be able to take full advantage of the opportunities offered by digitalisation so that European businesses can remain globally competitive. At the same time, public interests and fundamental rights must remain effectively safeguarded. Europe must therefore set out a clear, future-proof framework with the right preconditions. To that end, the government wants the Netherlands to contribute actively to the European debate on these issues in order to give direction to policy development at an early stage.

At the national level

The government will ensure a coordinated approach of the Netherlands at the international level. At the national level, we establish important frameworks and provide direction to and space for innovation. We do so, for example, in the areas of the labour market, the education system, digital safety and security, research and innovation and connectivity. Where necessary, the government will have to lay down new rules, remove rules or adapt existing rules in order to continue to safeguard important public values and fundamental rights. In the case of rapid developments, it is important to be flexible.

At the local level

Digitalisation is driven by global technological developments, but it is at the local level that the various consequences of digitalisation come together. The effects can vary greatly at different locations, which is why local customisation is important. For example, the holiday rental of houses has far-reaching consequences for the local quality of life in popular cities, but much less so in small villages. In such cases, municipal authorities are best equipped to provide customised solutions.



URBAN AGENDA FOR THE EU

We are shaping our ambition to be a European leader in line with European agendas such as the Urban Agenda for the EU. Cities meet and use each other's digital solutions for the modernisation and transformation of their city. Such cooperation presents opportunities to strengthen the strategic position of the Netherlands in the field of digitalisation.

Track 1: Leveraging social and economic opportunities

Everyone can benefit

Digitalisation is essential for our future earning capacity and prosperity. Investments in ICT account for about 20% of economic growth and digitalisation is crucial for the current and future growth of our productivity. Furthermore, data flows growth is unprecedented. For example, the volume of cross-border data traffic increased by a factor of 45 between 2005 and 2014.²

Innovative technologies can also make an important contribution to the major social challenges we are currently facing, such as reducing CO₂-emissions or traffic jams, future-proof education or sustainable food supply. The government wants the use of digital technologies to contribute to issues that are of great social importance to all Dutch citizens, such as our prosperity, healthcare, our food supply and the climate.

² McKinsey, Digital Globalization, <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-globalization-the-new-era-of-global-flows>.



Chapter 2. Economic opportunities

Digitalisation offers a wide range of opportunities for companies to operate globally where this was previously not possible. For example, many small businesses and start-ups can export their products and services via digital platforms. Digital technologies also enable far-reaching logistical planning, so it is not necessary to come up with, make and sell products from a single location.

Markets and parties that stick to old revenue models are often severely affected by these developments. However, there are also many companies that are adapting their revenue models and are thus benefiting from digitalisation. For example, Signify (Philips Lightning) can now provide lighting as a service, instead of light bulbs as a product, and Siemens can supply sustainable electricity instead of wind turbines.

THE NETHERLANDS AS A DIGITAL GATEWAY TO EUROPE

The Netherlands is the digital gateway to Europe and an important data hub. The basis for this lies in the presence of internet exchanges and the associated backbone connectivity, data centres and large cloud providers. Partly because of this extensive ecosystem, various technology companies have chosen the Netherlands as their place to do business in Europe. These companies have established their head offices, data centres, sales and marketing offices and/or distribution centres in the Netherlands.



What's more, the structure of markets sometimes undergoes a fundamental change. For example, the world's largest provider of overnight accommodation does not own a single hotel room. In addition, completely new products, jobs and services are being created. It is estimated that over a million people in the EU work in the app industry, a sector that hardly existed only 10 years ago.³

Many Dutch businesses operate on a global playing field and are highly dependent on exports. In order to remain competitive, the Dutch business community must lead the way in digitalisation. The government is therefore providing a boost by means of specific action programmes for SMEs and the industry.

INTERNET PLATFORMS

Major internet platforms such as Google, Facebook, Alibaba, Uber and Airbnb are now playing an indispensable role in the economy and in our lives. We spend a lot of time on such platforms, buying and selling things, communicating, navigating the web or the road and enjoying music or series. A flourishing platform economy has been created in the Netherlands in recent years, with leading companies such as Adyen, Booking.com, WeTransfer and Thuisbezorgd.

Internet platforms offer major benefits, such as improved access to knowledge, easier and faster communication and new opportunities for businesses and consumers to buy and sell goods and services. As a result, platforms have quickly become crucial hubs for social and economic traffic.

The government sees the advantages and importance of platforms and wants to make as much room as possible for innovation. At the same time, this means that platforms have an important responsibility, for example in the fight against disinformation and illegal content. They also have an important responsibility towards affiliated workers and consumers, when paying taxes, with regard to transparency and explainability of algorithms and in the way they handle data. In this strategy, the government will set out the principles and actions that are appropriate to these changing responsibilities of platform companies.



³ See, for example http://www.progressivepolicy.org/wp-content/uploads/2016/11/2016.06-Mandel_The-App-Economy-in-Europe_Leading-Countries-and-Cities-final.pdf.

2.1 Digitally skilled SMEs

SMEs have traditionally been the job engine of the Dutch economy and have a strong presence in high-growth sectors. Digitalisation offers many opportunities for companies to increase their productivity. For example, it lets them respond more quickly to customer requirements by analysing data on payment behaviour, automate payroll administration with the aid of smart apps or set up an online marketing campaign.

These opportunities are currently not being sufficiently exploited for various reasons. The Annual Report on the State of the SME sector (*Jaarbericht Staat van het MKB*) shows that, in all sectors, only a few SMEs are highly productive.⁴ Companies indicate, among other things, that they do not know which digital innovation is most profitable for them and how to implement it in their company. In addition, companies experience uncertainty due to concerns about cybersecurity, for example.

Previous experience has shown that, when scaling up ICT innovations in SMEs, there is no silver bullet. It is mainly about involving the right parties in order to break down barriers that inhibit the upscaling and large-scale use of ICT.

▶ ACCELERATING THE DIGITALISATION OF SMEs

Because of their economic and social importance, the government wants to support SMEs in their transition to a digital economy.⁵ Digitalisation as a means of increasing productivity is central to the 'Accelerating the digitalisation of SMEs' (*Versnelling digitalisering mkb*) programme.⁶ The focus is on the technologies that contribute most to this: big data, automation and online sales and marketing. On the basis of promising regional initiatives, practical tests are started, which are then scaled up if they are successful. The first practical test, 'Driven by data' in 's-Hertogenbosch, has now been launched.⁷ By identifying and disseminating best practices, we enable businesses to learn from each other. We do this in cooperation with the business community, regional parties, industry organisations and educational institutions, among others.

⁴ <https://www.rijksoverheid.nl/documenten/rapporten/2017/11/17/jaarbericht-staat-van-het-mkb-2017>

⁵ With this, the government is also executing the motion of the member Amhaouch et al. (No. 82 34775 XIII).

⁶ The programme is part of the Action Plan for SMEs (MKB Actieplan), which will be presented to Dutch parliament before the summer.

⁷ <https://platformdrivenbydata.nl/>

2.2 A progressive and flexible industry

The government's ambition for industry in the Netherlands is to have the most flexible and best digitally connected production network in Europe by 2021, through which the manufacturing companies involved will also achieve substantial energy and material savings.

Therefore, the Smart Industry Implementation Agenda (*Implementatieagenda Smart Industry*) was published this spring, in which the government focuses on the digitalisation of industry. In addition to the manufacturing industry, this also includes, for example, companies active in the chemical and construction industries. The Action Agenda is implemented by a public-private consortium, 'Team Smart Industry'.⁸ The focus is on three priorities:

1. Ensuring that SMEs participate and benefit from the knowledge from, for example, field labs.
2. Ensuring workers are prepared by investing in skills.
3. Safe and effective digital collaboration in the chain, for example when sharing data.

▶ SMART INDUSTRY

With the Smart Industry Implementation Agenda (*Implementatieagenda Smart Industry*), we are promoting the digitalisation of Dutch industry. This agenda has five policy action lines:

- Getting companies started: using concrete actions to support companies with digitalisation.
- Field labs: these are testing grounds where companies can experiment with the development and implementation of new technology.
- Research: joint research agenda for the development of new knowledge.
- Skills: contribute to the development of digital skills.
- Digital environment: standardisation, cybersecurity, data sharing.

⁸ This consortium consists of the Association of Mechanical and Electrical Engineering (FME), Koninklijke Metaalunie, the Dutch Chamber of Commerce, the Confederation of Netherlands Industry and Employers (VNO-NCW), the Ministry of Economic Affairs and Climate Policy, the Top Sectors High-Tech Systems and Materials (HTSM) and ICT and the regions.

Chapter 3 Social opportunities

An important part of digitalisation is taking place in social sectors in which the government has a relatively large role. This includes areas such as healthcare, mobility, energy and the agri-food sector. The further digitalisation of public administration itself, including the justice system, is another important challenge. The government wants to stimulate and support the digital transition in these areas.



SMART CITY STRATEGY

The Netherlands has developed a National Smart City Strategy with the aim of accelerating the application of innovation and technology in Dutch cities. The innovative solutions are also used to strengthen the international competitive position of Dutch cities and the business community. In order to give substance to this, the five largest municipalities in the Netherlands are creating five working groups on social challenges such as safety, health, mobility, resilience and circular economy.

3.1 A transparent and accessible e-government

The government is committed to an inclusive and transparent (digital) society. We want information, government services and new technologies to be accessible to everyone. We enable citizens and companies to take advantage of the opportunities offered by the information society.

In the coalition agreement, the government has therefore announced that, under the direction of the Ministry of the Interior and Kingdom Relations, an ambitious, broad agenda will be developed for the further digitalisation of public administration. The State Secretary for the Interior and Kingdom Relations will develop this with local and regional authorities and send it to Dutch parliament around the summer. The focus will be on the digitalisation issues and challenges facing the government, as well as the interests of citizens, social institutions and businesses. The implementation of this agenda will also be done jointly.

Adequate provision of information and public services

Public services to citizens and businesses are provided by hundreds of different organisations. These organisations must operate simultaneously as a single government, act proactively, seamlessly refer people to other services, provide control over data and ensure that the total service package of the government – in the language of the Scientific Council for Government Policy (WRR) – passes the so-called ‘feasibility test’ for citizens.

The basis for this is a sound, future-proof, basic digital infrastructure that enables the digital government to function (such as DigiD, MijnOverheid, Ondernemersplein.nl and e-invoicing). The government is therefore working on the further development of this basic infrastructure. Accordingly, the question is to what extent this digital infrastructure can be used for the benefit of society as a whole, for example by companies. And in its development, account has to be taken of ensuring the interoperability of national and international infrastructures.



BASIC SKILLS AND DIGITAL OPPORTUNITIES

Digital and technological developments offer opportunities to address social challenges such as semi-literacy. For example, social media and other digital means allow more people with low basic skills to be reached than more formal routes and training courses do. Working on basic skills online can be a low-threshold solution, especially for people who are afraid or otherwise unlikely to enter a school or library.

There are already various options available in this regard, such as the website oefenen.nl and the Digital Help Platform (*digitaalhulppein.nl*). The Digital Help Platform is an initiative of, among others, the Ministry of Education, Culture and Science, the Ministry of Social Affairs and Employment, the Ministry of the Interior and Kingdom Relations and the Royal Library. An example of a project in which many people have been reached via social media is ‘Education for Women with Ambition’ (*Educatie voor Vrouwen met Ambitie*), financed by the Ministry of Education, Culture and Science.

The government also wants to do its utmost to make its own online products and services as accessible as possible. To this end, the government is working on the 'Humans Centre Stage' programme (*Mens Centraal*). In addition, the new European accessibility guidelines and the Convention on the Rights of Persons with Disabilities of the United Nations are being implemented. In this context, the government has decided that, in addition to being able to do business with the government digitally, people should also be offered the possibility of personal, physical contact.

► BROAD AGENDA FOR E-GOVERNMENT

Around the summer, the government will present an ambitious, broad agenda for the further digitalisation of public administration. This will focus on, among other things, adequate information provision and government services, the safeguarding of public values and the transformation of public administration.

3.2 Smart and sustainable mobility

With the current growth of the economy and the population, and the associated urbanisation, we see a considerable increase in traffic, resulting in traffic jams. With regard to public transport, the capacity of facilities in and between major cities, especially at peak times, is reaching its limits. At the same time, affordable public transport in sparsely populated areas is becoming increasingly difficult to maintain. In addition, climate targets call for a substantial reduction in carbon emissions, and therefore for innovations in passenger and freight transport.

The past few years have shown that technological developments can make a major contribution to these challenges. Consider, for instance, improved traffic flow, road safety and the possibility of driving more efficiently and cleanly. Smart applications allow road users and vehicles to become part of a larger, intelligent transport system, with continuous data exchange and matching of supply and demand. As a result, the mobility system is becoming increasingly intelligent, data-driven and interconnected.

The government's ambition is to achieve a more integrated mobility system in which the focus is on the user and their movements. As a result, travellers should experience more convenience – whether travelling by car, public transport or bicycle. What's more, through the use of ICT, passengers should be optimally able to determine which form of transport is best at which time and easily

switch from one form of transport to another. The aim is to achieve a greater spread across the various transport options and times of day in order to make optimum use of the available infrastructure. We want to keep the Netherlands mobile and accessible. The Netherlands wants to make the most of the opportunities in this area and be the global test location for smart mobility.⁹

This requires the government to adopt a flexible approach and to be prepared to learn through experience, while accelerating upscaling where necessary. The challenge is therefore to move from pilot projects and experiments to scaling up. The government cannot do this on its own. Coalitions with regions, civil society organisations and private parties and at the international level will be needed to achieve the ambitious shared goals.

► DIGITAL TRANSPORT STRATEGY

At the end of 2018, the government will send its Digital Transport Strategy to Dutch parliament, which deals primarily with better coordination within the transport sector through the sharing of data between companies and government authorities, and the development towards paperless transport. In addition, around the summer, the government will send a letter to Dutch parliament about Smart Mobility. Spearheads in this letter are a future-proof infrastructure, the creation of space for a new generation of vehicles and new mobility concepts and putting the necessary preconditions in place, relating to data (data protection, control over data), privacy and security, among others.

3.3 Using digitalisation to improve quality of life

Technological developments offer more and more opportunities to improve our quality of life, to remain healthy and self-reliant for as long as possible and to help decide on the healthcare we need. New medicines and innovative treatments mean new hope for people who are seriously ill. E-health solutions offer chronically ill people the opportunity to continue working and participating in society. Inventive tools are giving older people their freedom back, so they no longer have to relinquish control. Moreover, everyone, young and old, can take advantage of apps and wearables to live healthier lives.

⁹ See also the Declaration of Amsterdam, <https://www.rijksoverheid.nl/documenten/rapporten/2016/04/29/declaration-of-amsterdam-cooperation-in-the-field-of-connected-and-automated-driving>.

Because of these possibilities, the government has set three *e-health* goals for the period up to 2019. These should contribute to better, more accessible and more efficient healthcare. The goals are:

1. Access to medical data: by 2019, at least 80% of chronically ill people will have direct access to their own medical data, and at least 40% of all Dutch people.
2. Taking independent measurements: by 2019, 75% of chronically ill and vulnerable elderly people can use self-measurements and share the results with their healthcare provider. For example, they will be able to measure their own blood pressure or cholesterol levels.
3. Online contact with healthcare providers: by 2019, people receiving healthcare and support at home will be able to contact a healthcare provider 24 hours a day using a monitor if they so wish.

This fits in with a broader transformation in healthcare, a transformation from treating illnesses to stimulating and supporting health, self-reliance and quality of life, in the right place and lasting a lifetime. This really is a completely new way of thinking and doing things. The ever-increasing costs and a growing shortage of people working in healthcare reinforces this necessary development.

We are leading the way in the Netherlands. Innovating is in our blood, and we are already doing a lot to stimulate the use of *e-health* applications, for example through a Health Innovation School or by supporting start-ups. Moreover, we are working together in the healthcare consultation group (*Informatieberaad Zorg*) on ensuring the continued development of the preconditions for digitalisation. For example, we are making sound agreements on standardisation and consistent terminology, so that people involved in healthcare can understand each other unambiguously.

If healthcare for Dutch people improves, there will also be opportunities for businesses to spread their wings abroad. If agreements are made in the Netherlands that can also be used internationally, we will become a testing ground other countries will look to with great interest. For this reason, for example, we are working together in the

healthcare sector in an international Digital Health Society, launched under the Estonian Presidency, in which a 'Coalition of the Doing' agrees on common standards.



► DIGITALISATION IN HEALTHCARE

For the further digitalisation of healthcare, we will focus on a number of measures:

- **Increasing awareness, knowledge and competencies:** there is still much to be gained in terms of awareness of the possibilities among healthcare users, healthcare providers and management. The Ministry of Health, Welfare and Sport is therefore committed to providing information, offering a platform for best practices and organising events such as the e-health week. In addition, the Ministry of Health, Welfare and Sport promotes the incorporation of e-health and innovation in basic and subsequent education;
- **Increasing the innovative capacity of the healthcare system:** in order to give promising initiatives more opportunities to scale up more quickly, we are developing incentives and improving preconditions. We support SMEs with knowledge and expertise concerning the complex healthcare sector. The government provides seed capital to funds that invest in e-health companies. We are optimising the guidance to the statutory health insurance package and in the funding, and have developed healthcare service billing codes specifically aimed at promoting e-health.
- **Provision of information, standardisation and safety:** in the healthcare consultation group (*Informatieberaad Zorg*), stakeholders and the Ministry of Health, Welfare and Sport make agreements on the coherence of the provision of information in the healthcare sector, for example in the area of standardisation, data and privacy and information security.

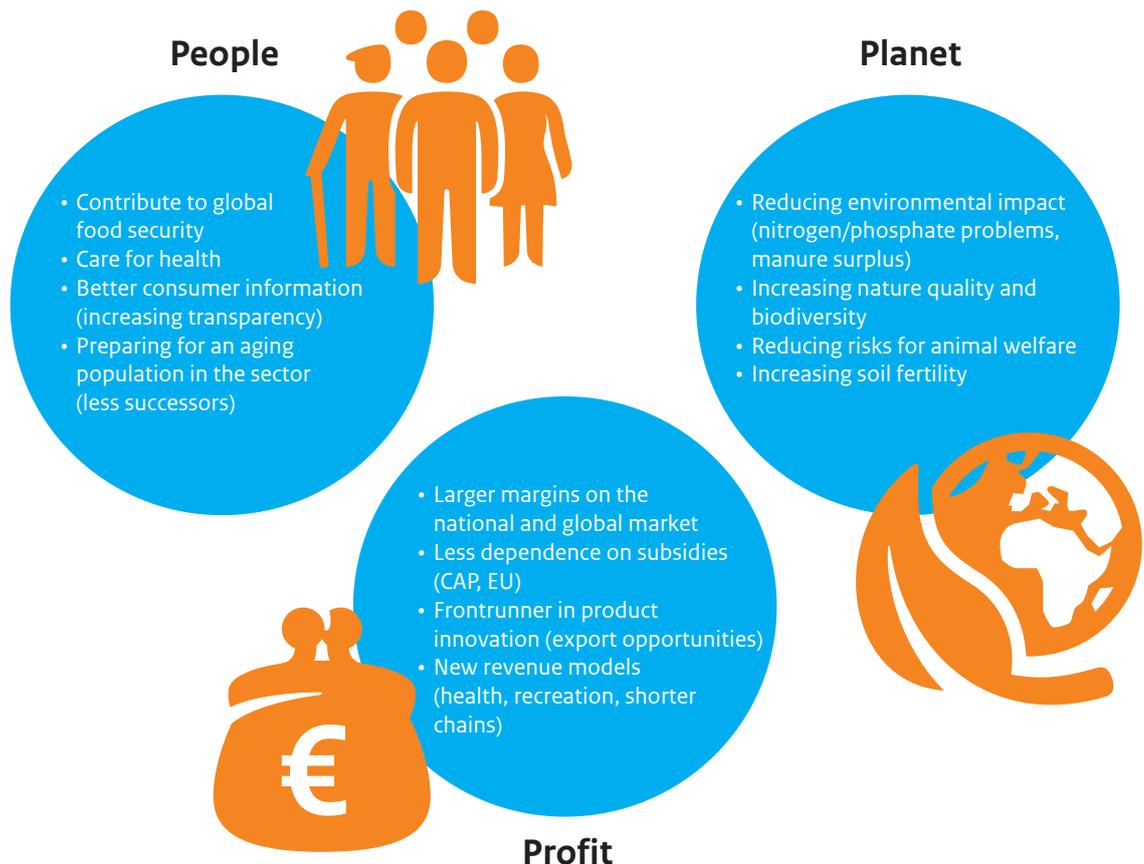


A GREAT DEAL IS ALREADY POSSIBLE IN THE AREA OF E-HEALTH.

- In Zwolle, 3,000 thrombosis patients have been using self-measurement and remote care for many years. Almost all of these people are over 60 and many are over 80. As a result, there is less pressure on the outpatients' clinic and people are hospitalised at the right time. This is done in more places and for more conditions, such as chronic intestinal complaints in Groningen and COPD in Doetinchem.
- The Maastricht Clinic in Maastricht, where cancer patients are treated, learns from treatments in different hospitals and different countries by implementing new data on a daily basis. On the basis of these data, they deduce what works and what does not, and in which cases. This makes today's healthcare better than yesterday's. All this is possible without the data leaving the source where the data were recorded: the research comes to the data. This is privacy-friendly and innovative, and the World Economic Forum sees this as a shining example.

3.4 Sustainable and safe food supply

In the agri-food sector, digitalisation can make an important contribution in various areas. This applies to the people concerned, nature and the environment, as well as the economy: People, Planet and Profit.



There are currently various initiatives aimed at digitalisation in the agricultural, horticultural and food sectors.

Knowledge and innovation

By means of the programmes for the Top Sectors in Agri & Food and Horticulture and Starting Materials, we are stimulating the development of knowledge and innovation. A number of Big Data and ICT research projects have also been started in the context of the Food Agenda. Furthermore, we are actively seeking to align with European knowledge and innovation programmes such as the 'Internet of Food & Farm' initiative.

Open cultivation

Tractors that are automatically controlled by GPS have already become common practice in open cultivation. Work is now carried out on applications that specifically calculate the correct cultivation operations on the basis of different variables of place and time (precision agriculture).

DIGITALISATION FOR PRECISION AGRICULTURE

Precision agriculture enables potato and sugar beet growers to use crop protection products, apply manure or control nematodes much more sparingly. This innovative method of agriculture requires a lot of ICT-related technology such as sensor technology, computing power, the Internet of Things (IoT), data analysis, artificial intelligence and robotics. In the longer term, this technology can play a key role in a more 'nature-inclusive' form of agriculture.



Glasshouse horticulture

Within the glasshouse horticulture sector, the use of sensors and computers in climate control, water management, CO₂ and fertilisation has been highly developed. The use of robots in harvesting, product sorting and packaging is also common practice. Logistics and trade are likewise, to a large extent, supported by automation.

Livestock farming

Milking and feeding robots have become exceedingly common in the livestock industry. The collection and processing of animal data is crucial here, and the control of these data is an important issue. Within the dairy sector, a data hub is being put together that supports the sharing of data from dairy farmers via a licensing structure. This initiative requires further development, which other agricultural sectors can also join in on.

Production chains

Work is being carried out on determining the position of products in the chain, mostly at the level of containers or freight/vehicles/train wagons. The next step is to be able to more accurately monitor the location at pallet or even product level. This development offers the prospect of transparency in the chain, improved food safety and faster intervention in the event of an emergency.

▶ THE FUTURE OF AGRICULTURE, NATURE AND FOOD QUALITY

Before the summer, the government will present an opinion on the future of agriculture, nature and food quality, which will also focus on the role of digitalisation. Social goals and ambitions are central to the further development and application of digital technology. The focus will be not only on knowledge & innovation programmes, but also on implementation programmes.

3.5 A flexible, sustainable energy system

In its coalition agreement, the government announced a Climate Agreement to reduce greenhouse gas emissions by at least 49% by 2030. Towards 2050, further action will be needed to meet the Paris climate targets. An essential part of this challenge is to make the energy supply more sustainable. In order to make the transition to sustainable energy possible, we are focusing on the most cost-effective measures.

Emphasis will be placed on the potential of intelligent energy networks, which enable more efficient use of existing infrastructure and new market models. Digitalisation makes it possible to increasingly control both production and consumption of energy remotely, and therefore offers the possibility of increasingly fine-tuning supply and demand. If, for example, less solar or wind energy is temporarily available, decentralised storage from electric cars can offer a solution.

At the same time, digitalisation poses a risk to security of supply, as previously autonomous systems are becoming interconnected and new digital vulnerabilities are introduced. This is a matter of concern in the light of, among other things, increasing geopolitical tensions and risks to national security.

▶ DIGITAL ENERGY TRANSITION

- Large-scale integration of renewable energy requires the mitigation of large peaks in supply, or the limitation of demand when less energy is available. Intelligent grids and flexible market models encourage producers and customers to use the energy system efficiently and to reduce the costs of the transition. Grid managers, energy suppliers, installation companies and technology companies, among others, are gaining experience in this field in various trial projects. The government is monitoring the balance between the policy objectives *affordable, reliable and sustainable* and is drawing up frameworks within which these developments can take place.
- Under the Electricity Act (*Elektriciteitswet*), grid operators are collecting usage and other data. The government is investigating how these data can be made more widely available, whereby customers retain control over their data. The data must be usable by market parties and customers, where parties has access to the data necessary to fulfil their role in the energy system, while maintaining privacy, confidentiality and integrity safeguards. The first steps in this direction are expected to be included in the first part of the Energy Act at the end of 2018.
- The government has announced a legislative agenda for the energy transition with a view to revising existing regulation. At the same time, we are working on an ambitious climate agreement, one of the tracks of which concerns 'research, development and innovation'.

Track 2: Strengthening the foundation

Putting the basic conditions in place

In order to take advantage of the social and economic opportunities offered by digitalisation, the necessary conditions must be in place. These include fundamental issues such as digital skills and literacy, research and innovation, fair competition, security, privacy protection and other fundamental rights.



Chapter 4. Groundbreaking research and innovation

Towards a learning and agile economy

Research and innovation are of great importance to our prosperity, well-being and productivity. The role of ICT in this respect is becoming increasingly important. A number of important technologies are currently emerging that offer opportunities for different sectors, markets and revenue models. These technologies include big data analysis, blockchain, artificial intelligence, 5G, cybersecurity, photonics and quantum computing.

The government wants ICT research and innovation in the Netherlands to have maximum impact. We want the Netherlands to actively contribute ideas, participate and benefit and be a co-decision-maker with regard to the direction digitalisation will take in the future. This requires a continuous high level of knowledge, for which collaboration between research universities, universities of applied sciences, other knowledge institutions, businesses and government authorities is essential. In this way, we can strengthen our adaptive, innovative and responsive capacity, allowing us to deal with and respond to the many and rapid changes in the world around us.

Challenges

The government sees two major challenges:

1. Increasing international competition.
More and more countries are engaged in the development of high-quality digital innovations and are actively engaged in the transformation to a digital economy. Countries such as Germany, the United Kingdom, France, China, South Korea, Japan, the United States and Canada are making substantial investments, in research in the field of artificial intelligence, for example. The Rathenau Institute states that, in the long term, Dutch investment in science and innovation may lag behind that of many other countries.¹⁰ In addition, international competition is making it more difficult to attract and retain scientific talent.
2. Increased coordination between science, society and business is necessary.
Research and the application of new digital technology are increasingly focusing on major social issues.

Examples include the use of big data analysis for healthy ageing and blockchain technology for a sustainable food supply. The combined effort of the scientific community, the business community and government authorities with regard to ICT as a key technology is necessary to further increase the impact of research and to link it to major social challenges in the Netherlands and worldwide, such as digital security. By working together and sharing knowledge, the scientific community, government authorities and companies can make more effective use of scarce resources such as budget, talent and time. Practice has also shown that businesses, civil society organisations, knowledge institutes and government authorities often have similar questions about digital innovations. For example, how does a new technology work? How can we apply it responsibly to social challenges and commercial opportunities? Does this fit within legal frameworks? Is it actually safe?

The challenge for the Netherlands is to tackle questions like these together and to organise the cooperation between different disciplines, between fundamental and applied research, between government authorities and with companies as efficiently as possible and to create optimal space for innovation. The approach to this is twofold:

- i. strengthening the national base for knowledge, research and innovation;
- ii. innovation-friendly, future-proof legislation.

4.1 A strong national base for knowledge, research and innovation

The development of knowledge about digital technologies in the Netherlands is of good quality across the board, but too fragmented. We therefore need to make choices and join forces. Through better cooperation and knowledge circulation, solutions developed in one sector can also be used in other areas. In this context, the government applies the following principles:

1. **Connecting the entire knowledge chain:** different parties in the knowledge chain must be able to work together in a coordinated manner and be able to exchange knowledge, whether it concerns fundamental or applied research, commercialisation of research (including field labs) or organising demand for new products and services.

¹⁰ See the recently published TWIN report, <https://www.rathenau.nl/nl/kennisecosystemeem/totale-investeringen-wetenschap-en-innovatie-twin-2016-2022>.

2. **Working on a multidisciplinary basis:** it is becoming increasingly important for research to include social aspects, such as take-up and behaviour, ethics, safety and security and privacy. Cooperation between all research disciplines is therefore important.
3. **Focus and fast decision-making:** a multitude of rapid technological developments also requires a concentrated and well-considered effort on the part of the government, in terms of both opportunities and challenges. This means that it is essential to quickly understand technology and its effects on society and the economy.
4. **Continuity:** funding – both public and private and the combination of these – should be long-term and stable, because building up knowledge and working on innovations takes time.

National Science Agenda

In order to strengthen the national knowledge base, technological developments and their impact on society are first and foremost an important theme in the National Science Agenda (*Nationale Wetenschapsagenda*). This involves questions such as: *how can we better anticipate the impact of new technology on people and society, and better understand and assess the impact of existing technology; what social changes as a result of technological changes are imminent and affect our prosperity; and what is the impact of new technologies and big data on the effectiveness of governance and the rule of law?* Digitalisation is thus a common thread throughout the various tracks of the National Science Agenda. Cybersecurity is also present in various tracks.

RESEARCH UNIVERSITIES ARE COMMITTED TO THE DIGITAL SOCIETY.

Dutch research universities are also aiming to make the Netherlands a pilot country and a testing ground in the field of digital technology aimed at people and society. To this end, they have joined forces and jointly launched the 'Digital Society' programme (*De Digitale Samenleving*). This programme focuses, among other things, on the themes of responsible data sciences, health & wellness, learning & education, work & organisations, digital cities & communities, safety & security and citizenship & democracy. In 2018, these themes will be further developed into work programmes in cooperation with private and public partners.

ICT RESEARCH IN HIGHER PROFESSIONAL EDUCATION (HBO)

Applied research at universities of applied sciences focuses on solving social issues and challenges. This gives room to a wide variety of practical questions, in which companies and other organisations are intensively involved. As a result, ICT research in higher professional education is socially relevant. In order to make higher professional education research more visible, ICT lecturers are working intensively on combining forces in the jointly applied research agenda.

Research and public-private partnerships

In order to further strengthen the national knowledge base and its application, the government intends to give digitalisation a central place in the updated Top Sector Policy (ICT as key technology). In this regard, alignment with the National Science Agenda (*Nationale Wetenschapsagenda*), the Digital Society Research Agenda (*Onderzoeksagenda Digitale Samenleving*) of the Association of Universities in the Netherlands (VSNU) and the various departmental agendas is key. The government is committed to linking the various agendas and promoting cooperation.

DIGITALISATION CENTRAL TO RESEARCH AND INNOVATION POLICY

- The government intends to give digitalisation a central place in the updated Top Sector Policy (ICT as key technology). Good alignment with social issues is also important in this respect. The government will inform the parliament about this before the summer.
- We are looking to maximise interconnections between initiatives in the context of the National Science Agenda, the VSNU's 'Digital Society' (*De Digitale Samenleving*) programme, the action lines of *Team ICT* for applied research and departmental knowledge agendas so that they can optimally reinforce each other.
- The government is driving innovation by making increasing use of the Small Business Innovation Research scheme (SBIR).

Applied research and public-private partnerships

In order to increase the impact of research into digital technologies, the government will be focusing on the following six action lines for public-private partnerships. These action lines focus on a number of emerging digital technologies in social and/or economic fields. They are open to anyone who wishes to participate, both public and private parties.



▶ ACTION LINES FOR PUBLIC-PRIVATE PARTNERSHIPS (TEAM ICT)

Action line 1: Big data analysis

Commit2Data is a long-term national research and innovation programme aimed at cross-sectoral cooperation on big data issues. This programme will be expanded to include social challenges, such as care and food/agriculture. For SMEs, we will make knowledge about data analysis and secure data sharing available via regional 'big data value centres' (data hubs). These will be located in Eindhoven, Groningen and Wageningen, among other places.

Action line 2: Cybersecurity

In order to strengthen the long-term cyber resilience of companies, citizens and governments, we develop multi-annual knowledge development programme. This is a public-private approach aimed at boosting high-quality cybersecurity knowledge development. To this end, research will be carried out into how various initiatives, processes and instruments relating to cybersecurity research can be better aligned. The possibilities for a (virtual) institute for cybersecurity research is also being explored. With the development of the National Cyber Security Research Agenda (NCSRA3), we will be combining the strengths of research universities, universities of applied sciences, organisations for applied research (TO2), the Netherlands Organisation for Scientific Research (Dcypher), companies and organisations from the fields of healthcare, mobility, energy, etc. In anticipation of this, the Ministry of Justice and Security, the Ministry of Economic Affairs and Climate Policy, the Ministry of Defence and the Ministry of the Interior and Kingdom Relations have earmarked €1 million for a call for research in 2018.

Action line 3: Blockchain technology

Blockchain technology enables safer, more efficient and easier data exchange and processing. Abuse of this technology is difficult because every transaction is controlled by several computers and is transparent. The government would like to encourage experimentation in this field. It is therefore one of the founders of the Dutch Blockchain Coalition. This coalition lays the foundation (with building blocks such as digital identities, security, legal frameworks) for the large-scale roll-out of blockchain technology with parties from the logistics, energy, financial services and ICT sectors and the government. Based on five cases, an exploratory study will be carried out under the supervision of the Research and Documentation Centre (*Wetenschappelijk Onderzoek- en Documentatiecentrum* – WODC) (part of the Ministry of Justice and Security) into the scope offered by legal frameworks for exploiting the opportunities of blockchain technology, mitigating possible risks and exploring points requiring attention for future legislation.

Action line 4: Artificial Intelligence

Artificial intelligence offers great possibilities for interpreting medical images, personal assistants on mobile phones and vehicle navigation. A new national programme will therefore be introduced. With this national programme, we are going to develop knowledge about technology, applications and the human factor (ethics, behaviour and take-up). In order to pool resources, we are working together with a network of regional hotspots in Amsterdam, Delft, Utrecht, Nijmegen, Groningen and Eindhoven.

Action line 5: 5G

5G is a new, high-grade and very fast ICT infrastructure, which is still very much in development. It enables new wireless services to address economic and social challenges, such as remote inspection, smart mobility, agriculture and remote care. In Groningen, government authorities, knowledge institutions and companies are working together in a 5G testing ground to develop knowledge and innovative wireless applications in rural areas, which SMEs can also participate in. In addition, 5G trials are being prepared in urban areas, including around the Amsterdam Arena. The Ministry of Infrastructure and Water Management is exploring the possibilities of using 5G for smart mobility.

Action line 6: Quantum computing and quantum software

Quantum computing can become a groundbreaking new way to process data very quickly and in large quantities in the future. The Netherlands is a leader in this field. For example, QuTech – a collaboration between Delft University of Technology, the Netherlands Organization for Applied Scientific Research (TNO), industrial partners and the Ministry of Economic Affairs and Climate – is the centre for scientific and technological challenges in the field of quantum computing. It is important that we further strengthen cooperation and practical application in this area. We are going to do this, for example, with the QuSoft research centre, an initiative of the University of Amsterdam, VU University Amsterdam and CWI, the Dutch centre for mathematics and computer science.

ICT infrastructure for research

Developments in cloud computing, open science, security and privacy are also placing ever-increasing demands on the digital infrastructure for research. The Netherlands currently has the high-performance infrastructure (comprising high-performance computing, networks and data) of SURF. In order to keep it up to standard in the future, the coalition agreement has freed up extra resources and the Netherlands Organisation for Scientific Research (NWO) will develop a plan to distribute them. In addition, national investments are made in the supercomputer. It is also important to be able to keep up with European developments. Examples include the European Open Science Cloud (EOSC) and the initiative to streamline Member States' investments and agendas in the area of high-performance computing (EuroHPC).



BLOCKCHAIN FOR A MORE TRANSPARENT AND FAIRER PRICE

In Ethiopia, 300 local coffee bean growers are participating in a blockchain pilot at the initiative of a Dutch FairChain business. Blockchain enables data to be managed and increases transparency and the mutual trust of chain partners. As a result, the number of intermediaries and the administrative burden are reduced. This enables growers to have more control over the quality, production and distribution of the coffee and to increase their income.

International cooperation

In 2015, the Netherlands exported almost €33.7 billion in ICT, representing a growth of 18% (excluding re-exports). In order to maintain the Netherlands' strong international position in the field of ICT, the government is working on a strategic internationalisation agenda for ICT. This will allow us to focus on trade promotion, knowledge diplomacy, international innovation cooperation and strategic acquisition. We will draw up the internationalisation agenda in cooperation with our stakeholders and in line with the policy document 'Investing in Perspective' (*Investeren in Perspectief*) of the Ministry for Foreign Trade and Development Cooperation.



INTERNATIONALISATION AGENDA

In order to increase opportunities and possibilities for the Dutch ICT sector, the government will come up with an internationalisation approach after the summer. This will allow us to focus on trade promotion, knowledge diplomacy, international innovation cooperation and strategic acquisition.

4.2 Innovation-friendly, future-proof legislation

In the digital world, developments can be rapid and far-reaching to the point that existing rules no longer suffice or become superfluous. Rules can also conflict or contradict each other. At the same time, new rules may also be required, to improve safety or to boost innovation, for example.

The government does not want regulation to impose unnecessary restrictions on innovation. In times of major change, sufficient room for responsible experimentation and learning is very important. Of course, relevant public values, interests and fundamental rights must still be taken into account.

A great deal of innovation is already possible within existing regulation. Often, providing information about rules or agreements with supervisory authorities can remove uncertainty. It is important for businesses to be able to contact the government if they experience regulatory bottlenecks. For example, the Dutch Authority for the Financial Markets (AFM) and De Nederlandsche Bank (DNB) offer parties the opportunity to share knowledge about issues at an early stage when launching innovative financial products, services or business models on the market, via, for example, blockchain technology (Regulatory Sandbox concept).

Creating or changing rules takes time. The government will therefore commission more strategic explorations in order to be able to identify the legal, technological and ethical consequences of new developments at an early stage. We are doing this together with companies, institutions, the scientific community and other stakeholders, and the results will also be shared interdepartmentally and inter-administratively. This approach with drones, for example, was successful. It is also important, when preparing policy and legislation, to make use of the possibilities offered by digitalisation, such as the Internet consultation website (www.internetconsultatie.nl) and the Legislative calendar (*Wetgevingskalender*).¹¹

¹¹ In the summer of 2018, the Legislative Calendar (*Wetgevingskalender*) will be extended with a digital legislative dossier in which the documents to be made public will be clearly shown.



▶ SPACE FOR DIGITAL INNOVATION

To create scope for digital innovation, the government will take the following actions:

- Businesses that innovate with digital technologies such as blockchain and artificial intelligence can face regulatory barriers. Where possible, the government wants to work together with businesses to remove these obstacles. The government will therefore set up a point of contact where businesses can report any obstacles in policy and legislation. The plan is to link this contact point to the existing programme in this field (*Ruimte in Regels*), so that businesses have a single recognisable (digital) contact point for reporting obstacles to innovation in legislation and regulations.
- Testing and experimenting at test sites will be made easier. Specific attention will furthermore be paid to the possibilities and preconditions for testing locations for drones.
- The ‘Better regulation and services’ (*Betere regelgeving en dienstverlening*) programme will be launched before the summer, with the aim of removing concrete obstacles to innovation and creating scope for experimentation. In this context, it will be considered whether more legal scope for experimentation is needed in a general sense. To this end, we will be looking at experiments across the board, including in relation to statutory provisions on experimentation, in which the government experiments with regulations in a controlled setting, but also other ‘scope-creating’ instruments.



Chapter 5. Changes in work, new skills and lifelong learning

Everyone should be able to participate

Digital developments are bringing about a substantial acceleration of the pace at which tasks and occupations are changing¹². There are many opportunities for more and better work. For example, repetitive or physically demanding work can be taken over by machines, allowing people to focus on more challenging and creative tasks. Under the influence of digitalisation, jobs and tasks will change and in some cases will even disappear. At the same time, however, there will be a greater need for cybersecurity specialists, data analysts and app developers, for example.

It is important to get and keep everyone on board, not only on the labour market, but also in society as a whole. Within certain groups, a relatively large number of people lack basic ICT skills.¹³ It is therefore important that everyone learns the basics early on, that people continue to learn and develop to adapt to changing professions and that we support vulnerable groups. In this way, we can take advantage of opportunities, society will be more resilient to threats and we can make sure that nobody is left behind.

5.1 Up-to-date curriculum in education

Young people are growing up in a world where ICT is an indispensable part of life. The government therefore considers it important that young people are given a good foundation in basic ICT and information skills and media literacy. This deserves sufficient attention in both primary and secondary education.

The coalition agreement states that the curriculum review for primary and secondary education will be continued. The government is aiming for a dynamic implementation. This will create more attention for digital literacy and practical skills.

The curriculum review will of course also impact the knowledge and skills needed by teachers, and it is important that schools address this. There is also a national training programme, 'Digital Teacher' ('Digileerkracht'), which aims to strengthen the digital skills of primary school teachers.



ICT PROFESSIONALS PROVIDE GUEST LECTURES IN SECONDARY EDUCATION

'Pass IT on!' ('Geef IT Door') was set up to make young people interested in studying and working in ICT. This programme links ICT professionals to a secondary school to provide a guest lecture. In these guest lectures, professionals talk about working in the ICT sector or address a specific subject, such as big data, cybersecurity or programming. The programme has been successful, and over 250 schools have already applied for a guest lecture.

MEDIA GUIDE

The Ministry of Education, Culture and Science is financing the centre of expertise Mediawijzer.net, which is a network approach linking more than 1,000 media literacy organisations (including businesses, schools and libraries). Together with network partners, Mediawijzer.net organises public campaigns, carries out research and offers educational services, with the aim of making young people, teachers and educators more aware and critical of digital technology. This approach to media literacy will be evaluated in the summer and the parliament will be informed about this approach and possible follow-up actions in the autumn of 2018.

¹² See, for example, European Commission, 'ICT for work: Digital skills in the workplace' and the exploratory study carried out by the Social and Economic Council (SER), 'Mens en technologie: samen aan het werk (robotisering)' ('People and technology: working together (robotisation)').

¹³ Higher risk groups are people aged 45 and over, the non-employed and people with a low level of education. <https://ecbo.nl/portfolio-items/laaggeletterden-achterblijvers-in-digitale-wereld/>.

Senior secondary vocational education (MBO) must also respond to changes in professional practice and to new developments, where necessary, so that diplomas do not lose their value. The main focus is on knowledge, skills and competences a person studying in senior secondary vocational education needs in the exercise of their profession, regardless of the software package, the form of processing and the working method.¹⁴

In the coming years, higher education institutions will be working on the implementation of the Acceleration Agenda (*Versnellingsagenda*) for educational innovation, which will be stimulated by the government. The drive to really make a difference has never before been this great, and higher education institutions are committed to improving education through the use of digital technologies. Moreover, educational institutions are taking a critical look at the content of curricula and exit qualifications in order to improve the student's digital skills, for all types of programmes. This is intended to improve the alignment with the labour market, so that students are better prepared to enter the labour market. In addition, the education sector and the business community are increasingly managing to cooperate efficiently in public-private partnerships.

▶ NEW CURRICULUM

The curriculum for primary and secondary education will feature a greater focus on digital literacy and practical skills to better equip pupils for the future. The aim is to have a new formal curriculum take effect in 2021.

5.2 An adequate basic level of digital skills

The government believes everyone should be able to participate in society. In a society where digitalisation and other technological developments are having an ever-increasing impact, an adequate basic level of digital literacy is necessary in order to participate. Even so, approximately 11% of Dutch people aged 16 to 65 have little or no experience with computers. This is as high as 20% for Dutch people aged 55 and over and 30% for people with low literacy levels.¹⁵

¹⁴ In senior secondary vocational education (MBO), the extent to which students leave with a certain level of digital skills depends on their study programme. Every young person also takes a number of optional courses during their programme. The elective subject 'Basic digital skills' is in the top 5 of the elective subjects followed.

¹⁵ ECBO - Laaggeletterden: Achterblijvers in de digitale wereld? ('Semi-literate: Lagging behind in the digital world?'), <https://ecbo.nl/portfolio-items/laaggeletterden-achterblijvers-in-digitale-wereld>.

The government supports various initiatives and encourages both employers and social parties to give people with limited digital skills the opportunity to acquire these skills. Stichting Lezen en Schrijven, the foundation for reading and writing, supports municipalities in the field of digital skills with, among other things, the 'Digimeter', the 'Education for Women with Ambition' (*Educatie voor Vrouwen met Ambitie*) programme (for women with low levels of education who are at a distance from the labour market), the digital help platform 'Digitaal Hulplein' and the 'Taalhuizen' and 'Digitaalhuizen'.¹⁶ Libraries also play an important role. The national Library and Basic Skills programme (*Bibliotheek en basisvaardigheden*) supports libraries in organising services for people with limited language and digital skills. In the coming period, the government will investigate how this type of support can be expanded. Collaboration with private parties will be considered in order to have a wider reach.

▶ FOCUS ON DIGITAL SKILLS

The government supports municipalities, libraries and social initiatives in offering extra training to people with limited digital skills. As of 2018, digital skills courses can be offered via the education budget of municipalities.

Government authorities are paying more attention to the comprehensibility and user-friendliness of their digital services. In 2018, various studies are being conducted to provide insight into what difficulties people encounter when contacting the government digitally and how these can be resolved. In addition, experiments and testing grounds are set up in order to experience in practice how best to respond to people's needs.

5.3 A learning workforce

Because of changing jobs and tasks, the government considers it important that workers keep developing themselves, so that they can continue to carry out their work well and with pleasure, even in a rapidly changing environment. However, investing in expertise and new skills is not yet a matter of course for all workers.

A strong and broadly supported learning culture requires a broad approach. Employers, employees, Training and Development funds (*O&O fondsen*) as well as educational institutions, private trainers, municipal authorities, regional partnerships and the central government all play a role in this context. The primary responsibility for

¹⁶ See also Chapter 3.1



USING DIGITILISATION FOR BETTER EDUCATION

The government wants to use educational technology to achieve higher quality in education. In primary and secondary education, we aim to have every teacher use the modern teaching materials that are necessary for an up-to-date curriculum in order to provide attractive education that is more in line with the learning needs and talents of pupils. Pupils need to be well-equipped, and have the right skills, to keep up in a rapidly changing world.

In recent years, the necessary preconditions for this have been realised in the ‘Breakthrough project on Education & ICT’ (*Doorbraakproject Onderwijs & ICT*), for example in the field of standards, internet access and privacy. The vast majority of schools have the use of educational technology on their agenda and are experimenting with it. Investments have also been made in professionalising ‘demand articulation’ on the part of the educational institutions with respect to the market, resulting in, among other things, a buyers’ cooperative of and for schools: Sivon.

However, by no means all schools and teachers are making equal use of the opportunities offered by ICT for contemporary, challenging and high-quality education. The government therefore wants to continue to support this development. To take the next step, the Ministry of Education, Culture and Science and the Ministry of Economic Affairs and Climate, together with the Primary Education Council, the Secondary Education Council and professionals and partners in education, will be exploring the strategy for the digitalisation of primary and secondary education for the coming years. This will in any case focus on strengthening the innovative capacity of schools and teachers, digital and other skills of pupils and teachers, innovative teaching materials and infrastructure.

It is important in this respect that the education sector itself continue to manage the teaching resources and materials. Teachers should be able to select, combine, supplement and provide teaching materials to students and other users as they see fit. The ambition for higher education is for all lecturers to share their teaching materials openly by 2025 and for it to become common practice to reuse the teaching materials of others. In this way, teachers can work together on creating better teaching materials.

lifelong development lies with employers and employees. The government will set out the necessary preconditions and ensure support for people who do not have an employer/client.

5.4 Sufficient ICT professionals

Digitalisation is increasing the demand for programmers, cybersecurity specialists and data analysts, but supply is lagging behind. Companies in all kinds of sectors, as well as government authorities, educational institutions and other organisations (civic and otherwise), indicate that they are having difficulty finding enough ICT professionals. This is having an impact on the Netherlands’ ability to take advantage of the opportunities offered by digitalisation. For example, the shortage of people with the right knowledge is slowing down the further development of precision agriculture, and cybersecurity specialists are needed for a secure and well-functioning digital infrastructure. In order to ensure a sufficient number of well-qualified staff, an up-to-date curriculum and the right career choices are essential.

The government wants companies and organisations to be able to find sufficient well-qualified personnel. Various parties are developing great initiatives to give jobseekers with potential for and/or affinity with ICT the chance to develop this in innovative and creative ways. For example, the ICT Labour Market Training Fund (*Opleidingsfonds Arbeidsmarkt ICT*) is encouraging ICT employment projects, in-company training courses, retraining and reassignment.



▶ LIFELONG DEVELOPMENT

Before the summer, the government will present an elaboration of the coalition agreement in the field of lifelong development. The focus is on a broad approach to stimulate a positive learning culture, together with social partners, educational institutions and parties in the field. Part of this is the individual learning account and a digital overview of training opportunities in order to give individuals more control over their own learning pathway. In addition, experiments and pilots will focus on a strong learning culture in SMEs. The regional support structure will also be further strengthened through ‘Leerwerkloketten’ (education/employment information desks) and other initiatives. Furthermore, plans will be presented to make the training on offer for adults more flexible, for example through tailor-made training pathways in line with individual needs.

The government supports these initiatives and contributes to reducing the shortage of ICT staff by means of the Human Capital Agenda for ICT and the Technology Pact (*Techniekpact*). In this context, it is important to encourage girls and women to choose a degree programme/job in ICT.



MAKE IT WORK

The Amsterdam University of Applied Sciences (AUAS) and Nederland ICT are working together structurally to transform highly educated jobseekers without an ICT background into ICT experts. The aim is to scale up the successful Make IT Work project. The AUAS and Nederland ICT are jointly committed to attracting candidates and companies from all over the Netherlands. In addition, participating companies can provide concrete feedback on the curriculum, so that it remains in line with the current demand for talent. This project has recently been chosen by the European Commission as a 'good practice' for making Europe digitally literate.

The Human Capital Agenda for ICT contributes to a higher number of ICT students by inspiring high school students, stimulating regional cooperation and promoting the availability of a sufficient number of ICT lecturers/teachers. In the coming years, the aim is to double the number of vocational training centres focusing on innovation and modernisation of education in cooperation with the business community.

The Technology Pact will be continued as well, and ICT has been identified as an important transversal theme. Moreover, the Knowledge Workers Scheme (*Kenniserkers-regeling*) – a simple procedure that also makes use of the 30% tax rule – enables companies to bring knowledge workers from abroad to the Netherlands if they are unable to find the necessary personnel within the Netherlands.

The government, too, is experiencing problems due to a shortage of ICT professionals. For this reason, a plan of action has been drawn up for the recruitment of ICT staff, entitled 'Strengthening the ICT workforce in the civil service'



(*Versterking HR ICT Rijksdienst*). With this action plan, the government wants, among other things, to improve the preconditions for attracting, developing and retaining ICT staff and to be able to experiment on a small scale. In doing so, the government wants to work more explicitly with higher education.¹⁷This programme will be rolled out in 2018.



► SUFFICIENT ICT STAFF

- The Technology Pact will be continued and the Human Capital Agenda for ICT will be rolled out in order to improve the availability of sufficient ICT staff.
- The 'Strengthening the ICT workforce in the civil service' (*Versterking HR ICT Rijksdienst*) action plan will be rolled out in 2018 in order to be able to attract and retain ICT staff more effectively within the central government.

5.5 Clarity about working via platforms

With the advance of digital platforms such as Werkspot, Helping, Uber, Deliveroo and Foodora, more and more work in the service sector is carried out via digital platforms. This allows people to earn money in an accessible and flexible way. However, an issue with this type of service is whether the work is performed as an employee or as a self-employed person. Is the platform therefore an employer or just a mediator of supply and demand? This lack of clarity affects the social rights and entitlements of platform workers, the obligations of platforms towards workers and the enforcement of taxation.

The government wants to support people better in finding the right employment relationship and provide employers with a clearer framework. These issues extend beyond working via platforms, which is why the coalition agreement announced measures to provide more clarity for the self-employed and employers, and to prevent pseudo self-employment. In the field of platform work, the government also commissioned a study to gain a better insight into the consequences of the rise of these platforms.



► RESEARCH RESULTS ON WORKING VIA PLATFORMS

The government has commissioned research to gain a better understanding of how many people are working via platforms and under what conditions. The government recently sent this study – with a response – to parliament.

¹⁷ Letter to Parliament plan van aanpak ICT-personeel rijk (Action Plan for Government ICT Staff)

Chapter 6. A dynamic digital economy

Competitive, fair and transparent

As a result of digitalisation, new markets have emerged and existing markets are shaken up. Consumers enjoy various new products and services that they can find easier and at lower cost. Thanks to online markets, businesses have a much wider reach and, with insights from data, can optimise their processes and create new revenue models.

The government's role is to provide the ground rules and effective supervision. The government wants to ensure that companies can compete with each other in a fair manner and that newcomers also have sufficient opportunities. By keeping markets competitive, the Netherlands is reaping the benefits of digitalisation and we can prevent becoming too dependent on a limited number of large companies.

The government will pay specific attention to the role of data in this respect. Data have become an important new input of the economy and are therefore increasingly important for businesses to be able to compete and innovate. The government's basic principle is that the government itself should open up its data wherever possible and should encourage other parties to share their data responsibly.

6.1 Competitive markets

In a short period of time, several very large players have emerged in the digital economy around the world. This raises concerns about the emergence of dominant positions and possible abuses in the form of high prices, poor conditions or a situation where there is no longer any real chance that market positions will be challenged.

The government considers it important that markets remain competitive, so that the digital economy also is a fair and competitive economy. This means, for example, that businesses should have opportunities to enter markets and have a choice of channels through which they offer their product or service, and that consumers should be able to choose whom they wish to buy a product or service from.



CHOICE FROM A LIMITED NUMBER OF SUPPLIERS

In several sectors, such as care and education, parties wishing to procure digital products and services face a market where there are only a limited number of suppliers to choose from. For example, there are only two major providers of hospital information systems in the Netherlands.

In such cases, it is even more important that clear and fair agreements be made about access to relevant data. We also work as much as possible on the basis of open standards. In addition, where possible, efforts are being made to develop so-called 'digital commons', in which technology, data and resources are shared in accordance with a cooperative model.

First of all, keeping markets competitive requires adequate competition rules and supervision. The national and European rules also apply to new markets. The government therefore considers it important that, in addition to the European competition regulator – the European Commission – the national regulator – the Netherlands Authority for Consumers & Markets (ACM) – should also be well-equipped and be able to take effective action. The ACM has a dedicated team for digital competition, and has digitalisation high on its agenda across the organisation, with regard to regulated sectors, generic competition regulation and consumer protection. In order to be able to act effectively, the ACM invests in broad expertise and a coordinated approach and cooperates with other regulators.

In addition to adequate competition regulation, the question arises as to whether such regulation is sufficient to ensure that markets remain competitive. Competition regulators can often only intervene after the fact, once an undertaking has already abused its dominant position. Sometimes, some form of ex-ante regulation is needed, in particular if there are lastingly established dominant positions that prevent fair competition. In such cases, consideration could be given to regulating markets, as in the case of telecom and energy networks where access to networks is enforced through regulation. Caution should be exercised in such far-reaching interventions. Because of the cross-border nature of markets and businesses, this issue needs to be addressed at European level.



▶ INSTRUMENTS FOR COMPETITIVE MARKETS

At the European level, the government is committed to keeping markets in which platforms are active competitive, as well as to clarifying whether adjustments are needed to the range of instruments (competition law and otherwise). The government will also carry out its own analysis of various instruments, including rate and access regulation, in order to keep markets competitive. The parliament will be informed of this in the second half of 2018.

6.2 Fair relationships

Businesses that offer their services or products on platforms can benefit significantly from this, for example because of the wide range of platforms. However as a result, businesses may also become dependent on such platforms. In the mutual balance of power, it is important that platforms behave fair towards these providers. The European Commission has recently published a proposal to improve the relationship between suppliers and platforms. The proposal imposes transparency requirements on platforms and includes provisions on dispute resolution. A fair and transparent relationship will contribute to a well-functioning platform economy, benefiting both businesses and consumers and preventing smaller businesses from being driven into a corner.



▶ FAIR BUSINESS

- In the negotiations on the European proposal on the relationship between platforms and companies, the government will promote a fair and transparent relationship. This will contribute to a well-functioning platform economy. The government wants to prevent the proposal from imposing too many detailed requirements on platforms, which would result in high implementation costs. This is particularly true for small platforms, which may find it more difficult to compete with larger platforms due to detailed requirements.¹⁸
- The government is conducting research into the effect of low-price guarantees on the functioning of the market and is expected to inform parliament about this in the second half of 2018.

Technology companies offer their services in an increasing number of sectors. This often raises the question of the extent to which existing sector-specific regulations also apply to new players. In the recent past, for example, this has been the case in the taxi market as a result of the emergence of platforms such as Uber. In the future, we will probably have to deal with these issues in other sectors as well, such as healthcare and education. In dealing with this, the government will always put the public interest first and, where possible, stimulate innovation and entrepreneurship. This will sometimes call for a review of the rules so that new technologies and players are given room to manoeuvre without public interests being put under pressure. In the taxi sector, for example, innovative entrants are welcome, but the most important thing is that the safety of taxi transport is guaranteed. The government believes it is important to have a fair economy and a level playing field between traditional and new players, where new players cannot escape the rules.

In addition, in an increasing number of sectors, platforms allow private individuals to enter markets as new suppliers. There is not always a level playing field between professional suppliers on the one hand and private suppliers entering the market through partial platforms on the other. Where possible, the government will focus on self-regulation by platforms and on cooperation between local and national governments and platforms. In some cases, setting pragmatic boundaries between professional and private activities, such as setting a maximum number of times a service may be offered, can offer an appropriate solution. This applies, for example, to home restaurants. If such agreements prove to be insufficiently effective, the government will consider whether additional regulation is necessary, for example in the case of the rental of tourist accommodation.



▶ UNIFORM REGISTRATION OF HOLIDAY RENTALS

The government is in discussion with municipal authorities and platforms about a form of uniform registration of property owners who offer their homes for holiday rental on platforms, so enforcement by municipal authorities can be implemented more effectively and efficiently.

6.3 A thriving data economy

Data are becoming increasingly important in the economy and society. They are a crucial input for the new economy. For example, data on the nutritional needs of crops can contribute to more efficient business processes, and smart

¹⁸ See the BNC file for the complete position taken by the government (Parliamentary Paper 22 112, No. 2579).

sensors on lampposts can provide information about, for example, air quality or noise levels.

Moreover, data have the special feature that they can be used by several parties at the same time for different applications. For example, data on a car's performance can be used by the car manufacturer to develop an even better model, by maintenance companies to improve their services, by insurers to ascertain the circumstances of an accident and by the Dutch Directorate-General for Public Works and Water Management (*Rijkswaterstaat*) to promote road safety and plan maintenance. Moreover, many new possibilities and insights can arise by merging different datasets, and reliable datasets are crucial for the development of applications using artificial intelligence. The government therefore considers it important to make the best possible and responsible use of data.



DATA SHARING IN INDUSTRY

Brainport, SURF, TNO, the Province of North Brabant and the Ministry of Economic Affairs and Climate have formed a coalition that is committed to the safe and innovative sharing of data in industry. This coalition wants to create a safe and reliable environment where companies can exchange data and develop new business propositions. The Data Value Centre Smart Industry may become an open innovation platform for the Netherlands where businesses can experiment with data and big data.

BIG DATA ANALYSIS IN THE GOVERNMENT

Statistics Netherlands (CBS) is developing into a centre of expertise for the deployment of big data analysis for statistical information. Data from more than 200 government agencies is being collected at CBS for statistical analysis. In this way, other government authorities can be helped with statistical issues, for example on the economic development of villages and towns. CBS is a global leader in this field.

Thus, to take advantage of opportunities, parties must be able to share data safely and in confidence. Sometimes, parties wish to share or open up access to data on a voluntary basis, but experience obstacles due to legal uncertainty or complexity. The question is always: who controls the data? Who wants to, and can, have access to it, and under which conditions? This sometimes results in companies not exchanging enough data, which may mean that we end up missing out on opportunities, since more innovation can take place if companies can easily and confidently share data, and it also reduces dependence on specific parties.

The government wants the Netherlands to be leading in sharing data within and between sectors. We already have a great deal of expertise in this area (legal, technical and economic) and there are various sectoral initiatives to promote data sharing, for example in the logistics, construction, healthcare and agricultural sectors. The government supports parties in such initiatives. The European Commission has also recently announced a number of initiatives to facilitate data sharing within the EU. In this context, the Netherlands will focus on European cooperation and the free movement of data within the EU. Naturally, the parties involved will have to comply with the relevant rules such as the General Data Protection Regulation (GDPR) for forms of data sharing in which personal data are processed.



► RESPONSIBLE DATA SHARING BETWEEN SECTORS

The government is exploring the possibilities for an open, cross-sectoral agreements system for the responsible and voluntary sharing of data between companies, with due consideration of the GDPR. A system of agreements of this kind can ensure safety and trust in the sharing of data between companies and sectors. The parliament will be informed of the results in the autumn of 2018.

Exclusive access to data can have a negative impact on innovation, competition and market structures. In the financial sector, for example, banks will be obliged to share account information with other providers, subject to customer consent. This stimulates competition and innovation in payments, which will benefit consumers.

Mandatory data sharing can thus be a way to promote competition and innovation. At the same time, mandatory sharing or opening of datasets can also have a negative impact on the incentive to collect data or to invest in business models based on certain data, because the data can then easily be copied by competitors. In addition, broader data access may negatively affect data protection and security. This means that privacy, security, competition and innovation may end up conflicting with each other.



▶ VISION ON DATA SHARING

In the second half of 2018, the government will publish its vision on data sharing to promote innovation and competition.

To promote transparency and innovation, the government aims to ensure that its own information is accessible and can easily be found, in the form of open data.¹⁹ In this context, the European Commission recently proposed a revision of the Directive on the re-use of public sector information. For the Netherlands, it is important here that any revision should strengthen the open data policy of governments to stimulate the data economy, as this should not lead to an increased regulatory and administrative burden.



▶ NATIONAL DATA AGENDA

The government has a lot of general, public data at its disposal. These data are made easy to find and accessible in the form of open data. To this end, the government will focus on (i) real-time access to dynamic government data, (ii) a substantial increase in highly valuable datasets and (iii) simplification and cost reduction in access to and support for applications. This will be further elaborated in the National Data Agenda (*Nationale Data Agenda*), which will be published in the autumn of 2018.

6.4 A world-class digital infrastructure

The digital infrastructure is a basic prerequisite for the new economy. Dutch mobile and fixed networks both score very well at the international level. In the European Digital Economy and Society index, the Netherlands ranks number one in the connectivity component,²⁰ with four fast mobile 4G networks and two high-quality fixed national networks. A good digital infrastructure enables citizens and businesses to participate in the digital economy and society and the creation of new applications such as in-home care and self-driving cars. In addition, the excellent digital infrastructure contributes to the business climate and conditions in the Netherlands, for example by attracting and retaining economic activity in prime locations of the Netherlands.

¹⁹ This information must also be findable and searchable for future generations, which is why we wish to ensure that it will be sustainably archived.

²⁰ EU - DESI: Average of Fixed Broadband, Mobile Broadband, Speed and Affordability.

The government aims to ensure that the Netherlands will retain its international leadership with world-class fixed and mobile communication networks. This requires that private parties continue to invest in networks and that the needs of different users are met. In this way, the market can provide high quality connectivity that can serve a wide variety of demands and is available anytime and anywhere at competitive prices.



OPEN SCIENCE AND OPEN ACCESS

Research is becoming increasingly data and software driven. Open access to scientific publications and research data from publicly funded research is an important starting point in this respect. The aim is to apply FAIR principles in this respect. This means that research data must be *findable, accessible, interoperable and reusable*.

The market must lead the way, and the government has a role where the market fails to reach national ambitions. The current objective of the government is that, by 2025, fast mobile 5G technology will be widely available and everyone will have access to the internet at a fixed location with a speed of at least 100 megabits per second (Mbps). This is in line with European objectives. It must also be mentioned that this goal is a lower limit that applies to everyone. The expectation is that a large majority of Dutch households will by that time already have access to the higher speed of 1 Gigabit per second (Gbps).

To this end, it is important to reassess the preconditions. A Digital Connectivity Action Plan is being developed comprising the following points:

- i. Spectrum policy: the government is making sufficient frequency spectrum available for new wireless networks, keeping 5G and the needs of companies and existing users in mind.
- ii. Local policy: local policies are important for the proper roll-out of new networks. Examples of this include requirements on antenna placement and permit conditions for excavation work for new cables. The Action Plan indicates whether further transparency or harmonisation of rules would be desirable.
- iii. Investments: in order to maintain sufficient incentives for investments in a market in which two parties are dominant, the Netherlands has successfully argued in favour of having sufficient instruments available within the European telecommunications framework to enable the regulator, the ACM, to intervene where necessary. This is intended to safeguard competition and freedom of choice in the future as well. However, not all the necessary investments can be made commercially viable, for example when it comes to

connecting households in rural areas. The Action Plan indicates how the government intends to speed up the process in rural areas.

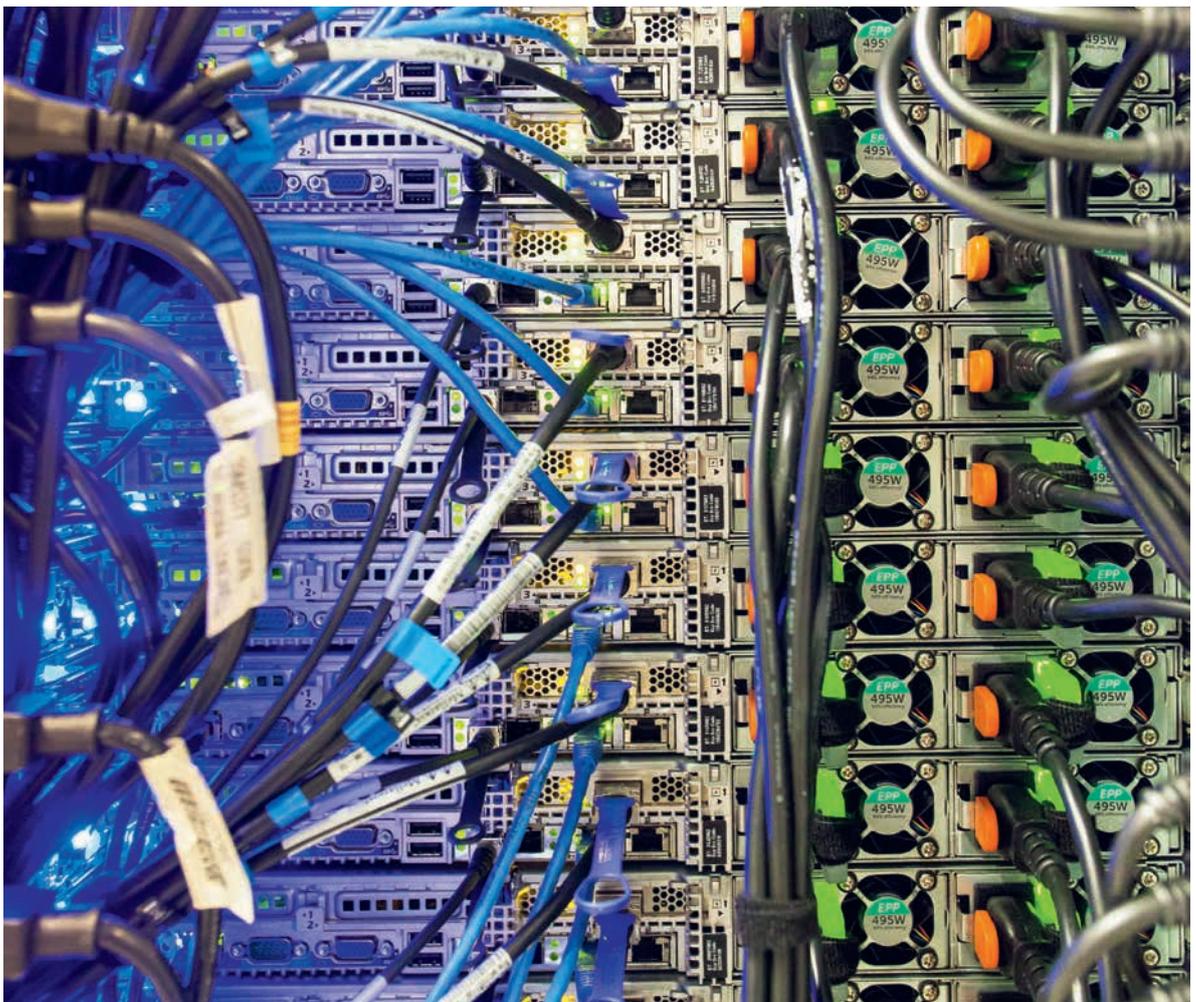
- vi. Continuity: it is important that the telecom networks be reliable and that, in the event of a breakdown, repairs be carried out quickly. Sufficient investments must therefore continue to be made in redundancy and emergency measures, in order to prevent incidents from leading to large-scale telecom failures and social disruption. The Action Plan discusses the role that the government can play to ensure continuity.
- v. Innovation: in the coming years, the range of connectivity should develop to enable digital innovations. Such innovations are expected to place increasingly specific and challenging demands on the digital infrastructure.

To this end, it is vital that market parties and other parties can experiment with new forms of connectivity, such as 5G. The Action Plan discusses various 5G pilots and the possibilities for facilitating them.



DIGITAL CONNECTIVITY ACTION PLAN

Before the summer, the government will present a Digital Connectivity Action Plan to ensure that, by 2025, fast mobile 5G technology will be widely available and everyone will have access to the internet at a fixed location at a speed of at least 100 Mbps. In addition, the expectation is that a large majority of Dutch households will by that time already have access to the higher speed of 1 Gbps.



Chapter 7. Strengthening the resilience of citizens and organisations

Digital security and privacy taken care of

Security and trust form the basis for a successful transformation to a digital economy and society. They are the foundation for a good business environment, for our competitiveness and for the take-up and use of digital technologies by citizens and businesses. The Netherlands therefore wants to present itself as a safe place to do business digitally. In this regard, cybersecurity products and services are an interesting growth market in which Dutch businesses can stand out internationally.²¹

Digitalisation creates new challenges in the areas of security, privacy and consumer protection. Digital platforms are sometimes powerful global players, and malicious parties often operate anonymously from abroad. The cross-border nature of cybercrime and cyberterrorism makes effective investigation and prosecution difficult. Trust in a digital economy and society hinges on an effective approach to these problems. This will require an effort on the part of all the national and international parties involved.

7.1 A safe and secure digital society

Cyber threats in the Netherlands are increasing in all sectors. For example, cyberattacks on the digital systems of hospitals and harbours can shut down all or part of these hospitals and harbours. In our digital society, the security of citizens, governments and businesses is currently inadequately organised. Many citizens and businesses do not appear to be sufficiently digitally resilient and awareness of cyber threats and protection measures is usually lacking. As a result, some companies are hesitant to further digitise processes.

The government, citizens and businesses all have a role to play with regard to digital security. They must all take appropriate measures to put their own digital security and resilience in order. The government holds primarily responsibility for the fight against crime and the protection of national security interests, including continuity of vital processes, protection of the reliability and confidential-

ality of public sector information and protection of the democratic rule of law.

The government wants citizens and businesses to be able to use digital applications safely, especially where these technologies affect not only their own digital security, but also that of society as a whole. The government is therefore responsible for setting the right preconditions.



CYBERSECURITY PROBLEMS WITH THE INTERNET OF THINGS

The Internet of Things is growing rapidly and offers many opportunities, but at the same time is increasingly posing cybersecurity problems. Hardware and software vulnerabilities can give malicious users easy access both to a single device and to the network to which it is connected, and this can have major consequences. Consider, for example, the misuse of hacked devices for DDoS attacks and the theft of information stored on devices.

The Digital Hardware and Software Security Roadmap contains a broad package of measures to promote the digital security of hardware and software. This ranges from discussions with stakeholders about liability in the event of digitally unsafe hardware and software, the introduction of CE marking, standards and mandatory certification at European level to exploring a testing facility and a supporting cyber hygiene information campaign.

In order to be resilient against cybercrime and digital threats, it is necessary, with due observance of the legal frameworks, to share up-to-date and useful information and advice about vulnerabilities and incidents and how to resolve them. The National Cyber Security Centre (NCSC) supports the central government and companies that are part of the vital infrastructure in this respect. In order to also improve the resilience of the rest of the business community – SMEs and non-vital businesses – the Digital Trust Centre (DTC) has been established. In addition, the government is investing in a substantial expansion of the government's cyber capacity and technology – including that of the Ministry of Defence – in order to be able to play a greater role in protecting the Netherlands against digital threats.

²¹ See, for example, the VKA report, 'Economische kansen voor de Nederlandse cybersecurity-sector' (Economic opportunities for the Dutch cybersecurity sector). <https://www.vka.nl/actueel/nieuws/rapport-vka-economische-kansen-nederlandse-cybersecurity-sector/>.



▶ COMMITMENT TO CYBERSECURITY

- Under the coordination of the Minister of Justice and Security, a Dutch Cyber Security Agenda (NCSA) has been drawn up. The NCSA aims to ensure that the Netherlands can safely seize the economic and social opportunities of digitalisation and protect national security in the digital domain. The NCSA comprises the following seven key ambitions:
 1. The Netherlands must have its digital defences in order.
 2. The Netherlands should contribute to international peace and security in the digital domain.
 3. The Netherlands should be a leader in promoting digitally safe hardware and software.
 4. The Netherlands must possess resilient digital processes and a robust infrastructure.
 5. The Netherlands must erect effective barriers against cybercrime by means of cybersecurity.
 6. The Netherlands must be a leader in the field of cybersecurity knowledge development (see also Chapter 4).
 7. The Netherlands should have an integrated, public-private approach to cybersecurity.
- A Digital Trust Centre will provide companies – among others via a digital platform – with up-to-date information and concrete advice on digital vulnerabilities and will contribute to a nationwide system of partnerships for the business community.
- The Netherlands is pressing for the rapid adoption of the Cyber Security Act (CSA) in Brussels. In the short term, the government will be advocating the adoption of mandatory certification for specific product groups. The importance of security by design will also be considered. In the longer term, through gradual extension, compulsory certification or compliance with CE marking should be extended to all internet-connected products.
- This year, the Ministry of Defence is renewing its Cyber Strategy, in line with the Dutch Cyber Security Strategy.
- The broad Agenda for e-Government (*Agenda Digitale Overheid*) will contain a coherent package of measures for information security and cybersecurity in the public administration.



IMPACT OF DIGITALISATION IN THE AREA OF JUSTICE AND SECURITY

The use of new technologies by malicious parties is leading to new forms of crime and security threats. At the same time, new detection methods and opportunities to increase safety and security are emerging. These can be very effective, while simultaneously raising privacy and ethical issues. Finding the right balance will require explicit attention.

For example, technological developments mean that more and more sensors are generating data that may also be relevant forensically, for example in criminal investigations or in court cases. Data systems in vehicles, for example, can provide the police with good and reliable data in order to determine the circumstances of an accident.

In the case of the police, the information supply is also central to enforcement and business operations. Mobile working has become the norm, in which regard information and data are of great value. Digitalisation is a major determinant of the operational effectiveness of the police.

New technologies also offer new opportunities for risk and crisis communication and emergency assistance. The most important thing is to serve the citizen as well as possible. Whereas emergency communication is now mainly geared to oral contact, the use of real-time data will change working practice. Examples include streaming video, allowing people to directly share relevant data about persons in need or about the location of the incident.

Government communication with citizens, for example during a crisis, is also going through a process of digitalisation. With resources such as NL-alert, Amber-alert or Burgernet the government can provide targeted information to citizens or ask for help in solving a situation.

In the field of justice, technological developments offer opportunities for new applications and digital accessibility. The digitalisation of the judicial system opens up new opportunities for big data applications. The justice system is cooperating with the scientific community to investigate how artificial intelligence can be applied responsibly within the justice system.



COMMUNICATION CAMPAIGNS

The communication campaigns for citizens and SMEs will be linked to new policies for digital security and privacy protection. Concrete advice, a framework for action and measures will be used to make people resilient and to contribute to behavioural change. Campaigns such as Alert Online, Veilig internetten.nl (on safe use of the internet) and Boefproof (anti-theft campaign) will be better coordinated government-wide and, where possible, brought together.

7.2 Protection and control of personal data

The European General Data Protection Regulation (GDPR) lays a new foundation for the protection of privacy. The GDPR entered into force on 25 May 2018 and gives citizens more rights and organisations more obligations to handle personal data with care.²² However, many citizens are still insufficiently aware of the online processing of their data. Citizens often have to give their consent to the processing of their data, but it is by no means always clear to them what exactly happens to their data. Moreover, citizens often do not have an effective choice when it comes to viewing information or purchasing an online service.

The government wants people to be able to trust that their privacy is also well protected online. This is a joint task for governments, companies and civil society organisations, who must ensure that people's rights and obligations are clarified and work on frameworks for responsible data use. In order to inform parties that collect personal data about the GDPR and to help them implement the GDPR, the General Data Protection Regulation Manual (*Handleiding Algemene Verordening Gegevensbescherming*) was recently published. In addition, the Dutch Data Protection Authority (Dutch DPA) has made a ten-step plan available as well as a personal data protection rulebook. Consultations have also been initiated with, for example, industry organisations, to help companies with the implementation.

In addition, the government wants to increase citizens' own control over personal data in order to further promote the protection of privacy. Clear frameworks (agreements systems) for personal data management will be formulated during this government's term of office, in agreement with the GDPR. The intended result is that:

- People can be confident that they can have easy and secure access to their personal data and its use by third parties, and that, where possible, they can correct, delete and use or reuse this data.
- Data controllers or administrators can contribute responsibly via agreements systems to the disclosure of personal data.
- Service and app builders know how to develop products that help people manage their personal data responsibly.
- Government records can actually be reused, so that governments, market parties or civil society organisations can develop services with them, to the extent permitted under the GDPR.

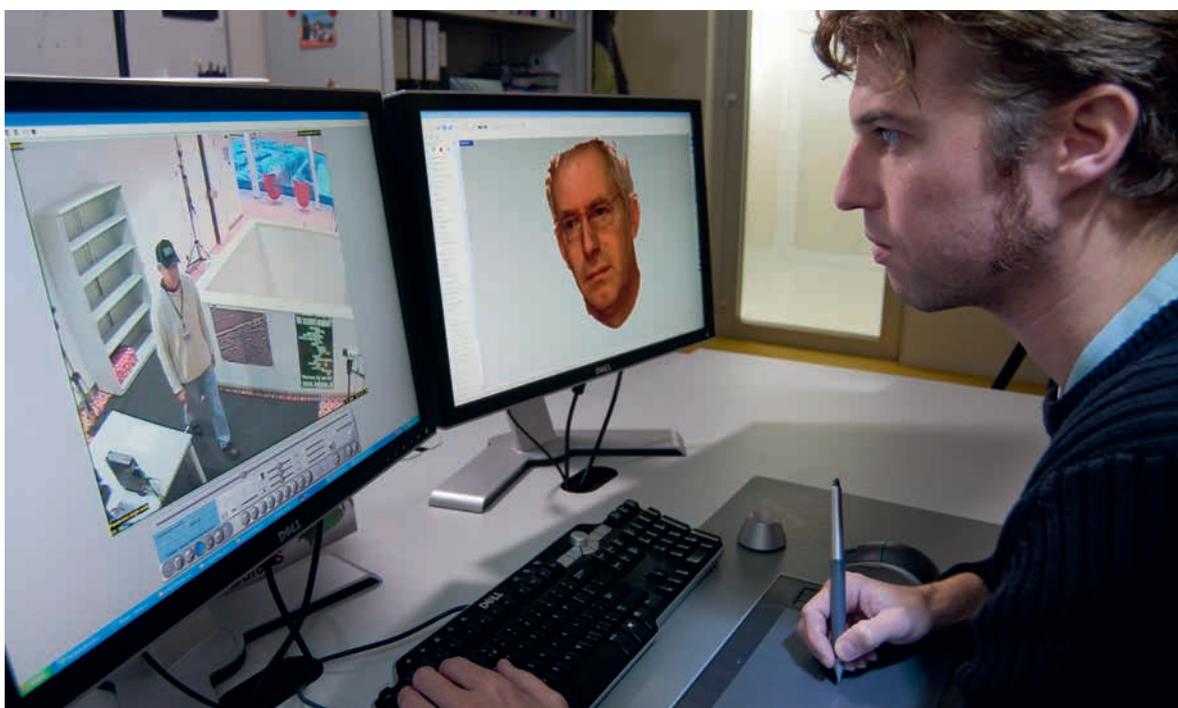


GREATER CONTROL OVER ONE'S OWN HEALTH DATA.

What does my pacemaker know about me? Even your doctor sometimes does not have the data. It is important to be able to access data that concerns you. After all, having a say in what happens to your own data provides greater control. It is also important to not be pressured into providing data if there is no need to do so.

MedMij's goal is to provide everyone who wishes, with their own health data in a single personal digital health environment. Such an app or website should be able to communicate securely and reliably with the information systems of healthcare providers. MedMij establishes rules for this. This will enable patients to view and manage personal data that are stored in different places in one complete overview. What's more, the patient can securely and confidently share these data with a healthcare provider, whenever and wherever they want.

²² When we talk about the processing of data in this strategy, the processing of these data, as far as personal data is concerned, must of course comply with the rules set by the GDPR. On the basis of the GDPR, the General Data Protection Regulation Implementation Act (*Uitvoeringswet Algemene verordening gegevensbescherming – UAVG*) has now been implemented, which, as far as the GDPR leaves room for this, builds on the standards framework from the 1995 Privacy Directive and the repealed Dutch Personal Data Protection Act (Wbp).



In addition to the GDPR, the European Commission has proposed a new ePrivacy Regulation (ePR). This Regulation lays down specific privacy rules for the electronic communications sector. The confidentiality of communications for traditional telecom services (the 'privacy of electronic communications') will be extended to communication services via the internet (such as WhatsApp), so that the confidentiality of digital communication will be more broadly guaranteed. The cookie provision – which also applies to the Internet of Things – has been made more user-friendly in the proposal: requirements are set for browsers and other software that make it easier to grant permission and offer clearer choices. The aim is to provide good online privacy protection and promote innovative and secure online services and applications.



► STRENGTHENING PRIVACY

- The government is actively involved in the development and implementation of an ambitious European ePrivacy Regulation, in line with the GDPR, that extends the 'privacy of electronic communications' to internet communication services and introduces cookie measures that make it easier to grant permission for data storage and use, with clearer choices. The government will also take account of the recently adopted motion by Verhoeven, et al.²³
- As announced in the coalition agreement, the government is committed to strengthening privacy between citizens. This autumn, the government will send a letter to parliament outlining the government's vision of how the privacy between citizens can be strengthened and what measures the government intends to take to this end.²⁴
- During this government's term, the 'Taking Control of Data' (*Regie op Gegevens*) programme will provide clear frameworks for personal data management, in agreement with the GDPR. A first draft of the Uniform Set of Requirements for Personal Data Management will be published at the end of 2018.

²³ Parliamentary Papers 2150133, No. 711.

²⁴ This will also include the government's response to the proposals in the initiative policy document of the member of parliament Koopmans, on mutual privacy (Parliamentary Papers II 2017/18, 34926, numbers 1-2).

7.3 Appropriate protection when buying online

Consumer rights apply not only in brick and mortar shops, but also on the internet when consumers buy a product or service. The government believes that consumers should be able to make informed decisions about products they buy online, for example through understandable consumer information, fair terms and conditions, transparent pricing, reliable customer service and complaint handling and online access to dispute resolution mechanisms.

The government has commissioned a study into the problems consumers experience when purchasing on digital platforms. This study shows that a large majority of Dutch people (70%) purchased a product or service via a digital platform last year and almost half (48%) sometimes offered something for sale. Consumers see the convenience and greater choice on platforms as the main advantage in this respect.

Approximately a quarter of consumers experience problems when using platforms. This concerns in particular a failure to deliver a product, or to deliver it on time, or the poor quality of a product. More than half of the platform users claim to be very poorly or very poorly informed about the protections offered by consumer law. Interest representatives of consumers and producers have likewise noticed that there is a lack of clarity when buying on platforms.

In addition, consumers are increasingly buying products from a country outside the EU via a platform. However, consumers are not always aware that they are buying from a supplier outside the EU. Moreover, there is a lack of transparency and questions are raised about the safety and quality of such products. For example, consumers may have to pay additional import or customs fees, or they may have to wait a long time for delivery. It is also sometimes unclear what rights consumers have if the product proves to be defective.

The European Commission is also mindful of the challenges in the area of consumer policy. In order to address these new challenges, the Commission has presented a package of measures. This package of measures modernises existing consumer legislation, inter alia to better reflect digital developments in society.

As markets continue to evolve and change rapidly, consumer law must be able to continue to adapt and develop if it is to remain relevant and provide solutions to new problems faced by consumers. The government will continue to monitor developments in consumer markets in order to identify new problems and develop behavioural scientific insights to support policy-making.



► TRANSPARENCY IN ONLINE PURCHASES

- A consumer must know whom to address as the counterparty in the event of questions or problems. This means that consumers should be informed who the contracting party is and whether the provider is acting as a business or as a consumer. The government will therefore enter into discussions with interest representatives of consumers, producers and platforms to see how this can best be arranged.
- The government wants consumers to be better informed about the important rights they have when purchasing via an online platform, and will therefore explore the possibilities for communication with various parties.
- Negotiations on new EU legislation will focus on enhanced disclosure requirements and increased transparency on platforms regarding the identity of the provider.
- The government will investigate which problems consumers encounter when purchasing products that are (or may be) part of the Internet of Things. It will also examine whether the monitoring of the Internet of Things is effectively organised to ensure that problems are adequately addressed.
- The government will send parliament the study on the problems people experience with their purchases on digital platforms, accompanied by a response, in the second half of 2018.

Chapter 8. Fundamental rights and ethics in the digital age

Trust in the digital future

Digitalisation affects the values and relationships in our society and the way in which we interact with each other. The use of new technologies and applications raises ethical questions and can have important implications for public values and fundamental rights. How, for example, can we prevent the use of big data from leading to the exclusion of specific groups? To what extent should algorithms be made explainable and transparent? To what extent should persuasive technologies be allowed to limit the autonomy of the individual? How can human dignity be safeguarded in the use of robots? To what extent does personalisation of the news restrict diversity of opinion and free elections?

Moreover, the digital transformation requires extra attention for equal treatment. The use of algorithms makes it possible to distinguish between groups of people on the basis of a variety of criteria, which until recently was practically impossible. The opportunities that this offers for providers of public and private services must go hand in hand with actively preventing unjustified discrimination and unequal treatment of, from a legal point of view, similar cases.

TRUST

Trust is the foundation for the successful digital transformation and for capitalising its economic and social opportunities. Residents and businesses must trust that technology companies cannot unilaterally dictate developments and trust that digitalisation is safe. For the government, it goes without saying that public values and fundamental rights such as security, privacy protection, self-determination, solidarity and fair competition are paramount and respected in the digital age as well.

The government considers safeguarding public values and human rights to be of crucial importance also in this digital age, and therefore sets the relevant frameworks and implements the appropriate policy. In experiments, government authorities can learn from the potential positive and negative effects of digital technologies and applications and how to address possible risks.

The government wants ethical standards and fundamental rights to be included in algorithms and the use of data. This is by no means always the case, nor is there always accountability for how this is done. The government is of the opinion that companies also have an important responsibility in this respect.

AUTOMATED DECISION-MAKING

The advantage of automated decision-making is that it leads to more efficient processes. The need for this and the possibilities for it are on the rise. At the same time, automated decision-making also involves risks, such as the risk of discrimination. The GDPR therefore prohibits automated decision-making. There are, however, a few exceptions to this rule. For example, this prohibition does not apply if the national legislator has expressly authorised it and provides for appropriate measures to protect the rights of data subjects.

The government is of the opinion that, for the time being, limited use should be made of this right to derogate. For this reason, the General Data Protection Regulation Implementation Act (*Uitvoeringswet Algemene verordening gegevensbescherming – UAVG*) provides only a general basis for forms of automated decision-making that take place on the basis of strictly personal characteristics. In view of the associated risks, automated decision-making on the basis of group characteristics requires a specific legal basis with sufficient guarantees to limit the risks.

► RESEARCH INTO ALGORITHMS AND ARTIFICIAL INTELLIGENCE



- Around the summer, the government will respond to a study into the relationship between algorithms and fundamental rights, carried out by Utrecht University. In addition, the Research and Documentation Centre (*Wetenschappelijk Onderzoeken Documentatiecentrum – WODC*) of the Ministry of Justice and Security is conducting research into the legal aspects of algorithms capable of making decisions independently.
- Under the direction of the Ministry of the Interior and Kingdom Relations, the government will set up an interdepartmental policy group to deal with the ethical issues surrounding digitalisation and, where necessary, propose concrete actions.
- The government has asked the Scientific Council for Government Policy (*Wetenschappelijke Raad voor het Regeringsbeleid – WRR*) for advice on the opportunities and threats associated with artificial intelligence. The WRR was asked to indicate which instruments are available to parties such as the government and the business community to facilitate the positive effects of artificial intelligence and to mitigate the negative effects. Within the new national innovation programme concerning artificial intelligence (see Chapter 4), attention will also be paid to the transparency and explainability of algorithms.
- In the autumn of 2018, the Minister for Legal Protection will publish a letter on the significance of developments in algorithms and artificial intelligence for the justice system.



8.1 Cooperation and dialogue

The government wants to discuss new ethical issues with the people concerned. Through dialogues, we involve broad groups of citizens, companies, government authorities and parties from civil society. In this way, we stimulate awareness and understanding about the effects of new digital technologies on public values. The Ministry of Justice and Security, for example, organises dialogues with representatives of privacy interests about how the government wants to take advantage of the opportunities offered by big data and the standards it applies in this respect.²⁵

Not only privacy and security, but also other rights, including fundamental rights, such as the right to free access of information, are important in this respect. For example, the Ministry of Education, Culture and Science organised round tables on the personalisation of news, freedom of information and independence of journalism.²⁶

INCREASING TRUST TOGETHER



The government – in cooperation with the business and scientific community – stimulates and organises dialogues on technological developments in order to increase trust and to clearly define the boundaries of developments.

COOPERATION OF UNIVERSITIES OF TECHNOLOGY IN ETHICS RESEARCH



Within the 4TU.Centre for Ethics and Technology, the Dutch universities of technology (Delft, Eindhoven and Twente) are working on research into ethical issues in the development, use and regulation of technology. This research focuses on interdisciplinary and applied research in ethics and technology, and on teaching in this field. The pooling of ethics and technology resources is in line with the growing need for balanced, high quality and comprehensive reflection and assessment of both moral and political issues relating to science and technology.

²⁵ Parliamentary Papers II 2016–2017, 26 643, No. 426.

²⁶ Parliamentary Papers II 2016–2017, 32 827, No. 116.

8.2 Reliable information and content on online platforms

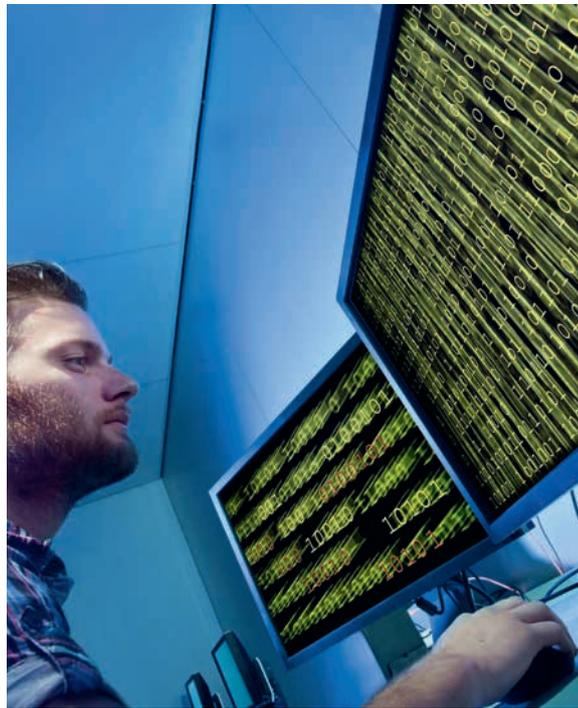
Illegal content

Ensuring a free, safe and just society is a core task of the government. For this reason, the Netherlands has adopted a targeted approach to illegal activities (online and otherwise). In tackling terrorism, child pornography, discrimination, illegal arms trade and copyright violations, considerable attention is paid to the online component.

The government attaches importance to the rapid and sustainable removal of illegal online content. In this context, the possibility of removing illegal content from online forums remains essential. The government sees added value in a uniform European approach or method for reporting and removing the various forms of illegal content, because of the common interest in effectively and efficiently combating illegal content. However, this approach must be flexible enough to respond to new developments, focus specifically on the distribution of illegal content online, be accompanied by sufficient safeguards in terms of, for example, transparency and human oversight and take account of the subsequent criminal proceedings against the distributors of illegal content.

The government takes a positive view of measures taken by platform companies themselves to combat illegal content. It is impossible for public authorities to be present on every platform at all times to maintain public order. At the same time, information needed by public services to carry out their tasks can increasingly be found in the digital domain and in particular on platforms. In order to safeguard public order and security and protect vulnerable citizens, it is essential that signals given in the digital domain be picked up and identified in good time by the relevant authorities, who depend in part on the providers of digital services, such as the major social media platforms.

As a result, the relationship between public authorities and digital service providers such as platform companies is changing. The platform companies are in the best position to observe what is happening on the platforms and to intervene in accordance with regulation. The government considers it important in this respect that measures taken by private parties come with sufficient guarantees, for example related to transparency and human oversight, and do not infringe fundamental rights such as the right to freedom of expression and privacy.²⁷



Disinformation

The government attaches great importance to an open information society. Our democratic rule of law and open society are built on foundations such as a free press, freedom of expression, free and fair elections and the rule of law. New technologies facilitate the dissemination of disinformation and the influencing of public opinion. This can undermine people's trust in public institutions and has the potential to damage our democratic rule of law. Protecting these is of the utmost importance.

What is relevant in this regard is that the distribution of fake news, although undesirable, cannot necessarily be considered criminal online content that can be equated with so-called hate speech or discrimination.²⁸ It goes without saying that the government will closely monitor the activities of the European Commission with regard to fake news, online disinformation and other platform risks.²⁹

▶ JOURNALISM IN THE DIGITAL AGE

- In the coalition agreement, extra funds were made available to support investigative journalism.
- Before the summer, the results of research and a round table discussion on the personalisation of the news supply will be shared with parliament.



²⁷ Parliamentary Paper 22 112, No. 2420.

²⁸ See, for example, Parliamentary Paper 26 643, No. 508.

²⁹ <http://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-5489364>.

Chapter 9. Moving forward

This strategy contains the overarching vision and the actions we will take together to ensure that we become the leader in this field in Europe. It describes the main features, the principles and the conditions.

In a number of separate agendas, the government will elaborate further on specific ambitions from the coalition agreement and this digitalisation strategy. The following short-term items can already be mentioned:

- At the end of April, the Minister of Justice and Security published the Dutch Cyber Security Agenda and the State Secretary for Economic Affairs and Climate Policy published the 'Roadmap for digitally secure hardware and software' (*'Roadmap digitaal veilige hard- en software'*).
- Before the summer, the State Secretary for Economic Affairs and Climate Policy will launch the 'Accelerating the digitalisation of SMEs' programme (*'Versnelling digitalisering mkb'*) (as part of the Action Agenda on SMEs).
- Before the summer, the Minister of Social Affairs and Employment will present an Action Plan for a breakthrough in the field of lifelong development.
- Before the summer, the State Secretary for Economic Affairs and Climate Policy will publish a Digital Connectivity Action Plan and a letter to Parliament entitled 'Noticeably better regulation' (*'Merkbaar betere regelgeving'*).
- Around the summer, under the direction of the State Secretary for the Interior and Kingdom Relations, an ambitious, broad agenda will appear for the further digitalisation of public administration.
- In the second half of 2018, the Minister of Defence will publish a new Defence Cyber Strategy.
- In the second half of 2018, the State Secretary for Economic Affairs and Climate Policy will publish a vision on data sharing.
- Before the end of 2018, the Minister of Infrastructure and Water Management will send a Digital Transport Strategy, focusing on improving the interconnectedness of the transport sector. A letter about Smart Mobility developments on the road will follow before the summer.
- In the first half of 2019, the Minister for Foreign Trade and Development Cooperation will publish an agenda on digitalisation in the area of Foreign Trade and Development Cooperation.

This strategy provides the basis for a government-wide approach to strengthen coherence and cooperation in the field of digitalisation. At the same time, this global transformation is accelerating and will continue to create new opportunities and raise new questions. We therefore need to be flexible and be able to adjust priorities in good time.

In order to keep this strategy up-to-date, we will review it annually where necessary. To use appropriate ICT terminology: the strategy 'is in permanent beta'. This review will also be central to the annual Digital Summit that the government will organise for the first time in early 2019 in cooperation with scientists, businesses, civil society organisations and local and regional authorities.³⁰



▶ GOING FORWARD: DIGITAL SUMMIT 2019 & PERMANENT BETA

The government will review the strategy annually so that we can respond to new developments.

In this context, we will organise a Digital Summit at the beginning of 2019 in cooperation with the business and scientific community and civil society organisations.

In order to better keep track of the digital transformation, we are looking at the possibilities of a monitor.

³⁰ Cf. the motion of Veldman et al. (Parliamentary Papers 34775-XIII, No. 67)