

The example innovation projects ‘use of water in periods of drought’ and ‘work and income’

Use of water in periods of drought

Via the Perceelwijzer (Plot Guide) website (perceelwijzer.nl), it is possible to download the Perceelwijzer app. Using this app, land owners are able to find information for example about groundwater levels and water quality.

The official release of the app for Brabant took place on 11 May 2020. The test version received a very positive response from the target group of farmers. They immediately called for new additional app functions. The Waterschapshuis (the control and implementing organisation for 21 water authorities) has submitted a proposal to roll out the Perceelwijzer for all water authorities. Once the decision on the request is taken in mid-2020, the participating water authorities will add their own data to the app, thereby providing national coverage. The Perceelwijzer has been made possible thanks to a contribution from the Innovation Budget.

Work and income

In 2019, the ‘Future of Data Interchange on work and income’ programme launched a series of proof of concepts, involving citizens. One pilot programme in Enschede aimed to help recipients of income support find employment sooner, by removing uncertainties about their income. This was achieved via an automated calculation model that gives the individual citizen immediate insight into their income support situation. Citizens feel a sense of greater certainty knowing that that income will be immediately recalculated. In 2020, the possibilities are being investigated for standardising this payment model to improve its application.

Innovating and experimenting together

Twenty projects received a grant from the Digital Government Innovation Budget 2019. The majority of these projects have now been concluded. The aim is to focus the projects on improving government services and to implement projects that tackle societal questions.

Innovation Budget Projects

- Headed up by the Municipality of Utrecht, the Wedding Planner (Huwelijksplanner) went live. Using the Wedding Planner, partners can plan their own wedding, digitally, leading to considerable cost and time savings both for the couples and for the municipal authorities.
- Using the moving home chatbot, government information can be organised in such a way that it can be accessed via multiple channels (municipal website, chat, voice).
- The project ‘From Poor to Better’ is working to develop a single digital counter for tackling poverty.
- An app that proved successful for the Kid’s Pack (winter and summer clothing, swimming lessons, access to local public transport) is being upgraded to include other forms of combating poverty.
- Software is being developed to check PDF files for digital accessibility before they are published online.
- In a separate project, data from the Netherlands Vehicle Authority (RDW) is being added to the data layer of the Common Ground architecture. In this way, the data will be made available to all Dutch municipalities and other entitled organisations.
- Within the ‘Calculamus-FLINT’ project, software support is currently being developed to provide explicit interpretation of legal sources on which public services are based.

The aim is to achieve a direct link between underlying principle and service provision.

- To improve cooperation between government and family administrators, an online knowledge network is being developed for people who act as court-appointed administrators for family members. The network will be a collection point for valuable instruments and information, viewed from the perspective of the individual citizen.
- Experiments are currently underway relating to the use of digital identity in practice. For example, for age checks for young people. The aim is to gain an insight into the effect of the use of a digital ID for the affected organisations (for example the police) and to review the user experience among citizens and professionals (digital identity and driver’s licences).
- The ‘Impact with AI’ project is an opportunity to gain experience and share knowledge of improved service provision based on transparent and honest data science in municipal applications. This involves three projects: ‘Honest algorithms’, ‘Transfer within social rental’ and ‘Clean city with image recognition’. The twelve provinces are working together within the project ‘Asset Information Management in public space & infrastructure for provinces’. Within this project, they are working to improve information exchange between provinces and project developers on the basis of digital versions, also known as digital twins, of public space and the infrastructure. The information exchange is intended for services to businesses and citizens.
- In another project, a digital twin is being created of a part of Zwolle. Together with local residents and other interested parties, scenarios are being investigated for reducing water problems (flooding) and heat stress. The aim is to investigate whether a digital twin is the ideal method for the central provision of uniform geodata, what the process involves and what it means for the National Geo Information Infrastructure.

- The project 'Digital twin with legislation and regulations for building plots in the Brainport Smart District' is developing a web environment with a digital version of a future district in Helmond, together with the applicable legislation and regulations. This will assist future residents and businesses to create their own home or business premises.
- Within the 'Netherlands budgeted' project, successful solutions are being upgraded, for e-participation. The aim is to reduce the obstacles and to increase the attractiveness for residents of communicating with the municipal authorities. In a separate project, municipalities are working together to improve the user-friendliness of the digital participation platform Consul.
- The Innovation Budget has also made it possible to develop the innovative example project Perceelwijzer (Plot Guide).
- The 'Vision on Undermining: Undermining Radar' project is based on the smart (re)use of data. The aim is to gain a greater insight into the nature, scale and patterns of undermining crime by analysing large volumes of data from a variety of government organisations. A spin-off of this project is the generation of best practices for data sharing within government.
- Headed by the Province of Fryslân (Friesland), artificial intelligence (AI) is being used to enrich satellite images with information about vegetation in dunes and soft marshes. At present, the same information has to be collected manually, on foot.
- The 'Energy Sharing & blockchain' project involves a feasibility study into a blockchain-based solution for the trade in energy between minor players and collectives with the APX/EPEX, the national trading platform for the purchase and sale of energy.
- The project 'Priority for goods traffic: connected transport' is developing a system that assists trucks to form a travelling convoy. They are then given priority for passing smart traffic lights. The aim is to achieve savings on fuel consumption, CO2 emissions and improved accessibility.
- The 'Swimming water alert' project is experimenting with the communication of information about safe swimming water, to prevent the risk of illness and drowning. The effectiveness of information is being tested on welcome screens with free Wi-Fi for visitors to swimming locations. Detailed information about all these projects is available on the [digitaleoverheid.nl](https://www.digitaleoverheid.nl) website.

Dutch Blockchain Coalition

Various Ministries and implementing agencies (including the Ministry for the Interior and Kingdom Relations (BZK), Economic Affairs and Climate Policy (EZK), Finance, DUO and the Tax and Customs Administration) are working alongside the *Dutch Blockchain Coalition*. Within this collaborative venture, between the public sector, knowledge centres, regulators and the private sector, work is underway on a variety of cases relating among others to certificates and diplomas, *Self Sovereign Identity* and certificates and *compliance by design*. The overall objective is for citizens to be able to demonstrate the validity of their diploma or certificate across national borders and to improve access to grants.

Dutch AI Coalition

The Ministry for BZK is a member of the Dutch AI Coalition, that brings together 300 government organisations, centres of knowledge and businesses. Within the public-private partnership of the Dutch AI Coalition, a public sector working group was established in 2019 for sharing knowledge, developing policy instruments and helping individual cases move forward in a joint approach and by challenging the market to help solve societal challenges.

Within the 'AI with Impact' project, a starter's kit has been developed that will enable organisations to effectively develop AI models, to initiate dialogue within their own organisation and to draw up the appropriate terms and conditions of purchase. The public sector working group of the Dutch AI Coalition plans to make use of this project and to expand its application.

BZK and PIANOo (Dutch Public Procurement Expertise Centre of the Ministry of Economic Affairs and Climate Policy) has continued to develop the innovation case (correct use of tendering for innovation). We plan to focus this case more on digitalisation and new technologies.

In collaboration with the Ministry for Social Affairs and Employment (SZW), the Municipality of Heerlen and the Municipality of Amsterdam, BZK commissioned Statistics Netherlands (CBS) to carry out an initial survey into the process of mapping out groups that run the risk of falling into the poverty trap. The results are being used in the Dutch AI Coalition's follow-up programme: the 'Poverty and debt prevention' project.

Small Business Innovation Research

Together with Small Business Innovation Research (SBIR) we are working to expand a network of partners that deploy new technologies in tackling societal challenges. At the same time, we are calling upon the SME sector to come up with its own innovative solutions to societal issues. In 2019, together with the Ministry for Justice and Security (JenV), BZK opened the innovation competition SBIR AI in public services. During phase one, 21 proposals received support, in a number of fields, including security and public space. In December 2019, the results of the 21 feasibility studies were presented, in the form of a report and a follow-up action plan. Practically all these plans have led to an innovation boost using AI in the government organisation, that was partnered by the market parties. According to expectations, even those proposals that did not receive support for phase 2 will eventually make their way to market. At the start of 2020, 5 plans were selected for phase 2: prototype development. The AI models that are being prepared for development are also suitable for application in other sectors.

The following projects were selected for phase 2:

- Thanks to 'Handwritten Text Recognition' (HTR), it will be possible in the near future to automatically convert millions of handwritten texts from the Amsterdam City Archive into transcriptions. Together with tech partners and the end user, we are creating a state-of-the-art search engine that can also be used by other institutions.

- Oddity.ai has developed a *deep learning* algorithm that issues a *real-time* alarm following a violent event. Oddity.ai analyses live video images without facial recognition or other forms of *tracking*.
- ZiuZ is developing software to analyse video material and classify its content using artificial intelligence. This tool has been given the working title 'VOICI' and is intended specifically for use by police detectives and *hotline* analysts in tackling online child sexual abuse.
- The aim of the 'Fileradar' project is to develop a new type of prediction tool for shipping, suitable for special situations such as accidents, events and bad weather.
- In the 'Speechlab' project, AI technology is being developed to identify and label the speech of different speakers. As a result, the police can improve the efficiency and quality of their work, while not being required to listen in to other conversations than those of the subject.

Start-up in Residence

In the first 'Start-up in Residence' (SiR) programme at BZK, a group of start-ups offered a solution for the societal challenges facing BZK. Start-up Geronimo AI developed a self-learning system that combines data from the Copernicus satellite with crop growth curves at Wageningen University. The resultant images show which crops are grown on leased land in the Netherlands, making it possible to trace land fraud on leased land, for example violation of crop rotation rules. The more than 4500 hectares of liberalised leased land owned by the Central Government Real Estate Agency were previously monitored from vehicles on the ground. This solution improves the effectiveness and speed of detecting fraud. Collaboration within Start-up in Residence means that the knowledge thus gained can also be used by provinces, but in their case to optimise road management.

The Start-up Energy Savers has developed a platform that allows home owners to design their home to be more sustainable. It offers a one-stop shop where they can learn about all aspects of improving the sustainability of their home. The start-up is organising a pilot to assess the further development of the AI platform to identify which sustainability measure best matches the wishes of 500 home owners. Within the Start-up in Residence programme period, Agents of Change developed a card game 'Kaart het Aan' (Raise it) that encourages individuals who have never previously been online to take their first steps on the Internet. In five pilot programmes, around 2000 people with limited digital skills have played the game.

In 2020, the SiR programme at BZK became an intergovernmental programme. The Ministries of the Interior and Kingdom Relations (BZK), Economic Affairs and Climate Policy (EZK), Agriculture, Nature and Food Quality (LNV), Social Affairs and Employment (SZW), the Province of Zuid-Holland and the Municipality of The Hague are now working together within the programme to tackle societal challenges. This intergovernmental collaboration increases our impact, and enables us to work together even better to tackle societal issues.

Within the first intergovernmental programme, 14 *challenges* have been set, 6 of which originated from BZK. Start-ups have been selected to tackle these challenges, that started work within the BZK Ministry on their proposed solution, on 1 June 2020.

In addition to the regular programme, in June 2020, SiR also published a special COVID-19 edition. The COVID-19 outbreak has set a whole raft of new challenges for society. This special speeded-up edition of SiR will be used by BZK to join other partners in setting COVID-19 *challenges* so that together with start-ups, solutions can be found that can be rapidly implemented in society. These challenges were identified, formulated and validated at an accelerated pace. The following challenges were set for the market on 9 June: the one-way society, events and conferences at 1.5 metres social distancing and fake news and disinformation in times of crisis.

We also participated in a series of pilot schemes, living labs and experiments in the framework of the 'Organising Together' initiative of the Association of Netherlands Municipalities (VNG). Based on the Common Ground principles, the municipalities are working step by step towards a new, futureproof municipal ICT infrastructure, seen from the perspective of the individual citizen. Among the tools deployed by the VNG for improving service provision are *field labs*. As a consequence of the corona crisis, we were forced to postpone the first government-wide digital government *fieldlab*. Initiatives of this kind tie in with the innovative approach to working favoured by us as government.

Knowledge and skills

The continuity and essential renewal of national digital services are threatened by a lack of knowledge (sharing) in the field of information technology and the limited recruitment of IT talent. To attract more IT expertise and to reinforce IT knowledge, the programme 'Reinforcing HR ICT in Government Service' was launched in 2018.

One of the objectives of this programme is to retrain lateral-entry candidates and existing civil servants to acquire currently scarce IT expertise in such fields as *cyber security*. A National I-traineeship has also been developed for recently or nearly graduated IT talents, focused on *data science* and *cyber security*. Via this route, 75 new IT talents started training in 2019. From the previous cohort that graduated in 2019, 95% have taken up positions within national government. Preparations have also been started to launch a so-called I-Partnership; a collaborative venture between national government and higher education in the field of societal challenges and digitalisation. By organising *fieldlabs*, deploying PhD candidates and developing relevant minors, we aim to attract more young IT talent, while at the same time bringing more existing knowledge from external parties on board. This knowledge can then be distributed via the National Academy for Digitalisation and Information Technology Government (RADIO).

The aim of RADIO is to increase the knowledge and skills of civil servants in respect of the digitalisation of their work. In 2019, the classically taught courses, launched one year previously, were further developed to add new themes such as privacy. A range of new online courses were

also developed, in the form of *e-learning* and webinars. In 2019, around 3,250 civil servants took part in the classically taught and online courses offered by RADIO.

A variety of centres of knowledge are involved in the further digitalisation of government. Research programmes such as '*Digital Society*' by the Association of Universities (VSNU) and 'Responsible Innovation. Designs for public values in a digital world' by the Dutch Research Council (NWO) are organised to satisfy the knowledge and research needs of government. We provide grants in support of the NWO programme. Five research proposals were funded at the end of 2019, focused on AI, blockchain, standardisation, data and *microtargeting*. Research into the themes within NL DIGIbeter are harmonised with the 'People First' programme and the VNG.

Knowledge exchange and cooperation are essential in translating the needs of society into innovative services for citizens and businesses. This is in part achieved via Digicampus, an initiative of the University of Technology in Delft, Nederland ICT, Logius and ICTU, launched in mid-2019. The Digicampus is a place where the market, government, the academic world and end users structurally join forces. In 2019, the focus was placed on investigating and structuring this cooperation. In 2020, the value and impact of the approach should become clear: accelerating innovation in favour of a digital society. In 2020, Digicampus is focusing on three themes: offering greater control to individual citizens, facilitating interaction with government for all and the government as a strong (data) partner.

Another initiative in the field of knowledge sharing relates to data-driven employment. BZK has launched a Learning and Expertise Centre for Data-driven Employment (LED) to serve as an information point and driving force, the aim of which is to help combine government organisations that intend to get to terms with data-driven employment. Knowledge exchange between government and the academic world is also taking place within the National Police Lab Artificial Intelligence, part of the Innovation Centre for Artificial Intelligence (ICAI).

Follow-up

We are continuing to encourage experimentation and other approaches and studies that tie in with the aims of NL DIGIbeter. The life events methods represents an excellent match with cooperation as a single government. Over the coming period, we wish to invest in disseminating and securing innovations developed in the framework of NL DIGIbeter. We will continue to search for the opportunity to offer other organisations the chance to use the new techniques and innovations developed (upscaling). We are supporting this process of upscaling and will assist in ensuring that the lessons learned and the developments achieved are rolled out across the Netherlands. By starting small, and subsequently upscaling the successes achieved, we will create a process that rapidly improves digital government for citizens and businesses.

Actions 2020-2021

Life events

- In collaboration with the 'People First' programme and the Chamber of Commerce, we are working on the obstacles that emerge from the user survey, for eight life events. In this way, we aim to improve communication with next of kin in these difficult times, and make it easier for entrepreneurs to start a new business.
- In 2020, the Omnichannel project was launched. This project focuses on the building blocks for a multichannel approach to communication with individual citizens, and supports the interaction strategy between citizens and government that is currently being developed.

Innovation

- Via the Innovation Budget, we plan to invest 6 million euro in 2020 and 7 million euro in 2021 on innovative ideas aimed at improving digital government services. In 2020 and 2021, in assessing applications, we will place greater focus on the end user, the life events method (People First) and creating and tendering via *open source*. We will take on board the lessons learned in 2019. These include greater emphasis on applying the principles of the User Needs First for example by asking how end users are involved in any plan proposals. We will also support all levels of government in tendering and developing *open source* products while concentrating on cooperation in coalitions.
- We will continue to actively cooperate among others in the *Dutch Blockchain Coalition* (DBC) and *Smart Society*. Within the DBC, we will above all support the development of *use cases*. For example the development of the *Self Sovereign Identity* (SSI) concept, that gives individual citizens greater control over the sharing of data (attributes). As a result, for example, diplomas and certificates can be exchanged via blockchain. In the framework of *Smart Society*, collaboration between national government, the Association of Provincial Authorities (IPO), the Employees' Insurance Agency (UVW) and the EU will focus on broader adoption of the 'Principles for Digital Society'.
- We are continuing to focus on a broader network of partners to encourage the use of new technology for tackling the problems facing society, for example with *Small Business Innovation Research* (SBIR). This competition challenges market parties to help find answers to societal problems through the use of artificial intelligence. 2020 will see the start of phase one of the SBIR AI for digital inclusion, lifelong learning and education'.
In 2020, in the SBIR 'AI in public services', five proposals have been selected that will focus in 2020 and 2021 on developing a prototype to answer a societal challenge. In these proposals, AI is for example being deployed to tackle child abuse and to improve access to a municipal archive. These projects do not always provide solutions to societal problems but do generate new insights into the possibilities of AI. 2020 will see the start of phase one of the SBIR AI for digital inclusion and lifelong learning.

- In 2020, a proposal will be prepared for a *European Digital Innovation Hub smart cities*, aimed at sharing knowledge about new technologies for citizens and entrepreneurs. In 2021, this will be used to respond to a *European call*.
- In 2020, we are extending the intergovernmental *Start-up in Residence* programme to include new partners. The aim of the programme is to challenge market parties to submit solutions to societal challenges, such as poor digital literacy skills. Cooperation between the various levels of government within this programme ensures a greater diversity of societal challenges, increased impact, cost savings and the ability to more easily upscale solutions. In the next round of the programme (at the end of 2020), work will be undertaken on new *challenges*. These are focused on optimising digital services and the societal challenges that have arisen as a consequence of the corona crisis and the 'new normal'.