

INNOVATING WITH SCIENCE



Insights for the
digital public services
of the future

DIGICAMPUS



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public services of the future**

DIGICAMPUS

COLOPHON

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Foreword



When the world seemed to fall silent eighteen months ago due to the outbreak of the COVID-19 crisis, our innovative minds started working overtime. The best and most creative ideas to keep our society functioning flourished around the world. Vaccines were developed at record speed in laboratories around the globe. Digital tools to keep life and work running remotely were a success. Innovation, combined with large amounts of improvisation, enabled us to limit damage as much as possible and help us emerge from the crisis

In education, an enormous amount of creativity has also been tapped into. Textbooks were rapidly converted into a digital offering; lectures were broadcast online, and work placements were completed virtually. The pandemic demonstrated the sometimes hidden, innovative power of education. It would be great if education could continue to benefit from this achievement, now that eighteen months later, essential contact between students and their teachers/lecturers has fortunately been restored. After all, we desperately need education to provide answers to the current and future questions of our society and to train future employees of professions that do not yet exist.

In this light, the collaboration with the educational programme *Spacebuzz* is both an exciting and creative development. Educational experts, Virtual Reality (VR) experts, scientists, astronauts and social partners are working together on a teaching package that will enable pupils to learn about space, the earth, nature and technology via virtual space travel, simultaneously meeting a number of key learning objectives. This is an interdisciplinary and innovative collaboration that reflects what will be needed in the future labour market - people who can apply their skills, talents and creativity across the boundaries of professional disciplines in order to contribute to the challenges that society faces or will face in the future.

Innovative solutions are needed to adequately address climate change and the energy transition. Promoting equal opportunities for all requires abandoning existing patterns. A digital society offers opportunities for innovation in, for example, healthcare or public services, but also raises ethical questions about people's privacy. It is important that we are able and willing to tackle these kinds of challenges more and more through broad co-operation between government, the business community, science, and social partners. Let us bring together the power of knowledge, science, creativity, art, and culture so that the people of our country can benefit from ideas and solutions that could make their lives more enjoyable and move society forward. We at the Ministry of Education, Culture and Science are happy to contribute to this, knowing that true inspiration and innovation arise when people consider an issue from different perspectives together. Digicampus is the perfect place for this to happen. Indispensable and inspiring!

Marjan Hammersma,
Secretary-General Ministry of Education, Culture and Science

Innovating with science

At Digicampus we work from the conviction that together we are better able to translate the needs of society into the innovative public services of the future. We believe that collaborative innovation is necessary for tomorrow's major challenges and we offer the market, government, science, and society a meeting place where they can innovate together beyond boundaries.

"The solutions of the future require a multidisciplinary approach to innovation," states Cees van Beers, Professor of Innovation Management at Delft University of Technology. The social challenges of the future often simply cannot be solved by one party anymore and require co-operation between different parties with different backgrounds and expertise. "How do you do that together with the Government, market, scientific community and users? Off-the-shelf solutions for this don't yet exist," says Van Beers. To further explore this area of research, Digicampus interviewed fourteen professors from across the Netherlands. In this publication they share their insights and visions on the subject of collaborative innovation between public services and science.

Innovating with science

Science provides independent knowledge which can be applied in practice in many ways. In this way, science helps various groups - from innovators and policy makers to technical architects and lawyers - to innovate thoroughly.

Scientists can contribute by:

- Acting as an independent and critical party between government, market, and user groups, with a focus on long-term vision.
- Bridging disciplines such as information technology, governance and policy, legislation, business models and ethics.
- Conducting applied research over several years into the impact of new technologies and securing this knowledge (getting knowledge down on paper is a discipline in itself).
- Developing new knowledge and methods.
- Giving shape to collective learning cycles and knowledge sharing across helices. This will help to involve a new generation of researchers.

- Validating knowledge and translating it into social structures, products, and services via start-ups.
- Inspiring with facts, examples, and lessons from around the world.

All these contributions are valuable in promoting innovation in an arena with diverse stakeholders, different interests and steering possibilities, and unknown outcomes.

Insights from science

In our earlier publication '*Innovating Beyond Boundaries*', we wrote about the various pre-conditions for the success of collaborative innovation. These include investment in common ground, in formal and informal structures, in solidarity and fairness, and in independence. This new publication adds new insights to this list. These include the call to safeguard the public interest and public values within innovation processes, the emphasis on knowledge development and sustainability within collaborations and experiments, the balance between regulation, facilitation and stimulation by the government, investing in a permanent knowledge infrastructure and finding the right steering mechanisms. We hope this collection of insights will help and inspire you to contribute to the development of the public services of the future.

Enjoy reading!

Bas Oude Luttighuis, Giulietta Marani and Nitesh Bharosa



Bas Oude Luttighuis

Earlier this year Bas graduated at Digicampus on the subject, *Proactive Public Services*. With this he completed a master's degree in the Management of Technology at Delft University of Technology. Since then he has been working as a research assistant at Digicampus and has also published and presented his work at several conferences.

Giulietta Marani

Giulietta is the Program Director at Digicampus. At ICTU she is responsible for the collaborative innovation portfolio known as Discipl. She is also co-author of the earlier Digicampus publication '*Innovating Beyond Boundaries*' and the ICTU publication '*An exploration of innovation in government*'.



Nitesh Bharosa

Nitesh is a professor of GovTech at Delft University of Technology and conducts research on designing and piloting responsible GovTech solutions. He is also the Scientific Director at Digicampus, responsible for research collaborations.

• Calls from science

Prof. dr. Jet Bussemaker:

"The heart must return to the welfare state."

We need to get back to what we are doing it all for. Innovations can contribute to this, as long as a clear goal has been formulated. It must be clear whether this goal is social or economic, especially if it is government-funded. We must ask ourselves, 'When does innovation help the citizen?'

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Prof. dr. Jeroen van den Hoven:

"Now is the time to work on new democratic mechanisms and the institutions of the future."

The citizen must be given a place in the decision-making process. This is no trivial task. Massive Open Online Deliberation (MOODs) platforms should form a Wikipedia-like environment for opinions, scalable to the entire Dutch population. Open, inclusive, dynamic and reliable. The government must take the lead in this, as it did previously with the early days of the internet.

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Prof. dr. Victor Bekkers:

"When setting up innovation projects, more thought needs to be given to diffusion and scaling up."

In the Netherlands we excel at setting up all sorts of isolated projects, but once the project is completed it collapses again like a soufflé. How to scale up certain insights and translate them into other domains, situations, and contexts, is an enormous challenge. That learning capacity must be facilitated and stimulated by a knowledge infrastructure that secures and further develops knowledge.

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Prof dr. ing. Bram Klievink:

"The government needs to figure out in which cases techniques can or cannot be applied."

When using algorithms for complex policy issues, you sometimes need to know exactly what data goes into them and what role the patterns that are recognised play. If you can't explain this, it may be a reason not to use the system, even if the outcome is good. We need to find out what kind of explanation requirements we attach to certain situations. Can the general public, a judge, an IT auditor or a municipal councillor understand it?

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Prof. dr. Ard-Pieter de Man:

"There needs to be improved learning beyond experiments."

For example, if you compare ten cases of the introduction of agile working in Government. What lessons can be learned? The opportunities are there for the taking. This is how you identify connections and share opportunities and limitations.

page 40

Prof. dr. Henk Volberda:

"Investing in technology is nothing without investment in people."

Companies often make little use of the technical possibilities they have. The bottleneck lies in the non-technological aspects of innovation. This can be overcome by investing in the level of integration within your organisation, the skills of your employees, 'servant leadership' that focuses on the knowledge of the worker, new organisational forms, and open innovation.

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Prof. dr. Albert Meijer:

"Government should not solve problems itself but shape the structures that make this possible."

The Government has a systemic responsibility which is different from the responsibility of other parties involved. It is the only party that has a generic mandate based on the democratic process. That does not mean that the Government should design all innovations itself. It is more a case of the Government ensuring that the right connections are made.

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• Calls from science

Prof dr. ir. Marijn Janssen:

"To innovate, the Government needs to become much more open with data."

Traditionally, the Government is a rather closed system. Digitisation makes it possible to transform into a more open system. This requires major institutional and organisational changes. The Government was once created to stand up for the general interests of society, but there is a danger that the Government will become too powerful and that citizens will be unable to stand up to it. Openness can work against this. Openness doesn't only lead to Government transparency, accountability, but also innovation.

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Prof dr. ir. Vareska van de Vrande:

"There is an important role for the Government to accelerate innovations in the early phase."

This is already happening with subsidies and programmes for start-ups. However, these subsidies eventually stop when it is still too early to turn to venture capital investors. The Government must take a more active role in bridging this gap by seeking commitments.

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Prof dr. ir. David Langley:

"Connecting all kinds of data can lead to totally new forms of value creation."

This means that you can start providing services in other ways, in order to better respond to what creates the most value for the customer. To do this, you must first break away from the way you currently work, even though it is difficult and risky, and especially if you are already successful. You will soon see that the parties who are taking the right steps in this digitisation process are preparing themselves to reap the benefits.

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Prof. dr. Marcel Boogers:

"Current social issues need greater consideration from a regional perspective."

Themes such as the energy transition and housing challenge are played out on a regional scale, while the Netherlands has no regional government. Local interests are currently weighed up against each other and a compromise is reached to which everyone can only agree to a limited extent. However, the issues demand a solution that is best for the region as a whole.

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Prof. dr. Cees van Beers:

"The implementation of technology is considered less important than its actual development."

This is currently apparent with the major technological developments that are bringing about far-reaching changes in the economy and society. It is important to develop these from a multidisciplinary approach, allowing different stakeholders to monitor different values. In this way, social values can be included in the design process.

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Prof. dr. Nadine Roijackers:

"The Government should be open to and embrace ideas and initiatives from society."

Co-operation is important if we are to tackle the major social issues of our time. Right now, numerous initiatives are happening in parallel, but no bridges are being built to connect them. It is important to put an orchestrator in place. The Government can be a facilitating trigger but should be more open to learning from and working with private parties who have a lot of in-house knowledge.

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Prof dr. ir. Nitesh Bharosa:

"We need GovTech-governance."

Changes are required to utilize the potential of GovTech. This is not only limited to systems or procedures, as cooperation between governmental bodies, users and service providers is required as well. This means we will have to work towards new forms of joined governance and decision-making in which the responsibilities for the safeguarding of public values are the main point of focus.

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Prof. dr. Jet Bussemaker

The heart must return to the welfare state

#society #innovation #public interest



Prof. dr. Jet Bussemaker

Professor of Science, Policy and Societal Impact, (specialising in health care) at Leiden University. This is a combined chair of Leiden University Medical Centre (LUMC) and the Faculty of Governance and Global Affairs. Jet was Minister of Education, Culture and Science in the Rutte II cabinet.

“My mission is to bridge the gap between policy issues, health care, its future and what happens in medical practice. I am pre-eminently a generalist who tries to connect different disciplines, such as social sciences, sociology, philosophy, public administration and medical science.”

We need to redefine our collective values. In the Netherlands we have drifted too far from innovation that improves society as a whole. Innovation is too often used unilaterally for economic productivity. We need to look beyond things that only benefit individuals or the market. In recent times it sometimes seemed as if the Government was there to provide innovation subsidies to companies. Subsequently, too little was asked of society in return, even though these innovations were paid for by society. Something has gone wrong with this reciprocity.

In the Netherlands we have drifted too far from innovation that improves society as a whole

With innovation, it is important firstly, to clearly formulate the objective. It should be clear whether this goal is social or economic, especially if it is government funded. Right now, innovation is often supply driven rather than

demand driven and not properly focused on the exact objectives that innovation and ICT must meet. There needs to be more focus on collective goals, especially when it comes to healthcare innovation and the use of ICT. It helps to set clear social objectives, for example, by focusing on solving staff shortages or providing a better service to citizens. Otherwise, innovation will be supply driven, as is often the case with telecare. We need to ask ourselves, 'When does innovation help citizens?' It can be extremely difficult for patients to come to the hospital for a short consultation or check-up. A digital solution could provide the answer. You see that it also works well for young people with mental health problems. They are used to talking on a screen and sometimes they find it too confrontational to sit directly opposite a healthcare provider. I think it's important that we think about these things more.

Involving citizens

It also helps to talk to citizens and ask them what they need. This can be done by involving citizens in research: *citizen science*. In Moerwijk, one of the most disadvantaged neighbourhoods in The Hague, a project is underway. Citizens often have more than one problem, including poor health, diabetes, or debts. You may be talking to them about lifestyle changes, but within two minutes you're talking about the mould in their house. It's a huge challenge to be able to innovate due to the complex needs of citizens who are very distant from the Government. This is also because these issues affect many different systems, silos and professionals.

The government should tackle innovation much more collaboratively. I was one of the initiators of the National Science Agenda, which was an excellent attempt to stimulate co-operation. If the government does nothing or makes no corrections, all the innovation power goes to economically productive sectors. In the Netherlands, for example, we have very little research into successful interventions in education to stimulate equal opportunities. I was an Education Minister for five years myself - look who's talking - but it is precisely because of this experience that I find it so dreadful that we know so little about this. With the science agenda, we have determined one of the routes to this, but it does not happen automatically. If, for example, the Government says that innovations must always be co-financed by private organisations, then you immediately know that a project involving ICT in healthcare will always win out over equal opportunities in education. After all, which private organisation would say of its own accord, 'I'm going to take part in research into educational equality?' No, there needs to be more focus on public interest in innovation, with extra controls needed to create a level playing field.

The government should more frequently approach innovation together with others

What are we doing it all for?

Ultimately, it's about putting the heart back into the welfare state. Innovations can contribute to this, but first we need to go back to what we're doing it all for. We need to ask ourselves more often what this actually is and what we are sharing with each other. This is not only a political question, but also a social and moral one. Innovation must then serve this purpose, otherwise it will become an end in itself. That's all very well for those who might come up with great designs, but the question is ultimately, 'what will you do with it?' If you don't ask that question, you end up with things that don't necessarily benefit society. We need to look at innovation from the bottom up. For example, we need to take into account that not everyone is self-reliant. Ultimately, I think we can give people more confidence in institutions, more control over their own lives and ultimately also save a lot of money. The Government shouldn't simply pull all the strings from the top but check whether innovations contribute to the public interest.

Of course, you cannot stop private parties from innovating. The Government has earmarked an unprecedented 8.5 billion euros for education. This must be spent within 2.5 years and as a result, private companies immediately focus on innovative ideas that could tap into this budget. However, this isn't sustainable at all. I'm not against private companies, but we do need to think more about how such things can be organised in a way that has a *multiplier effect* on society. In this way we ensure that the revenues not only remain with those private parties, but that the revenues within the public domain are also increased, especially where public money is spent. The same applies to medicine, for example, which is currently the subject of heated debate. Take also scientific publications - are publishers allowed to charge for them when the underlying research has all been publicly funded? There should be open access, so that different parties can monitor each other better.

Barriers to innovation

It is important to consider a number of barriers to innovation. One of these is path dependency. Policy makers can think up all sorts of new plans, but they

will not immediately be adopted by an organisation because of an already established culture. This culture is established by the boards of large organisations, financial streamlining, KPIs that are set and people's mindsets. The obstacle is in the organization of policy, but also very much in the culture that prevails in an organisation. An organisation which works in silos also hinders innovation. Many things are hierarchical and not organised in networks.

*In innovation, there needs to be
a greater focus on public interest*

Moreover, in innovation, too little use is made of creativity. This also has a lot to do with the aforementioned path dependence. This is due out need for something concrete to hold onto, security, what we have and what can be measured. It is often said that 'to measure is to know'. However, if you measure too strictly, it prevents you from coming up with other creative ways of thinking. It should produce something, so it must be possible to translate it into quantity, but this does not always work. If you are working on improving health, for example, you need decades. It really doesn't work if you need or want tangible results within a year. Although quantity is often measured, it should be more about quality.

Learning practice

Innovation projects should take on more the form of a learning practice. Currently, projects are supposed to deliver something and then stop, which is a real shame. It means that everyone focuses on the short term and preferably on goals that are clearly quantifiable and seem to be achievable. Innovation should be approached more as a new PDCA cycle, where you learn, innovate and share with each other. In this way, an ecosystem can emerge and develop, and the lessons learned can then be used. It should be more of a circular than a linear system, so that there can be continuous learning and development.

Science can contribute to this by not only pointing out from the outside what is wrong with policy and politics – there can be quite a difference of opinion here – but also think more about how they can increase the impact of their research. This could be in the area of policy, but also socially or economically. There are of course a number of initiatives that support this, such as the ecosystems around university campuses. This is an interesting way of making

a link, but you see that for many science parks it is mainly about technology, innovation and players in the market. Workplaces are already doing a much better job within the social domain. How can we learn from this to develop the link further? Fieldlabs and living labs offer opportunities for this. Moreover, the question must be asked, 'how can others be reached and included from the start?'. When asking questions, the focus should be on co-creation.

*To make an impact, you need to be able to put yourself
in the shoes of the people you are doing it for*

This question must be developed in a more integrated manner from the outset. Ideally, civil society organisations should be involved more often than is currently the case. This can be done with *citizen science*, but also with schools, for example. If you really want to create impact and action perspectives, you need to be able to put yourself in the shoes of the people you are doing it for, whether they are citizens or administrators. They may be groups you would not normally meet. Innovations can be huge, such as an electronic patient file, or small, such as an app that allows citizens with debts to maintain more control over their lives. In this way innovation can be used not only to control citizens, but also to give them more say and resilience. Big data is now mainly used top-down to control, but let's use that data to innovate from the bottom up and thus achieve more citizen power.





Prof. dr. Jeroen van den Hoven

True innovation occurs
when you design
based on your values

#innovation #democracy #values #ethics



Prof. dr. Jeroen van den Hoven

Professor of Ethics and Technology at Delft University of Technology. He is also currently, among other things, Scientific Director of the Delft Design for Values Institute, founder, programme director and until 2016 chairman of the NWO programme for Responsible Innovation and permanent member of the European Commission's European Group on Ethics in Science and New Technologies (EGE).

Innovation is not about building new functionality or coming up with something new that allows a task to be done faster, better, or more comfortably. This is an invention. Innovation is a broader moral concept. The point of innovation is to give the moral values that you have, such as privacy, sustainability, safety, autonomy, respect or social cohesion, a place within that invention. You design from your values and give them a place. This enables you to use the invention to achieve what you consider important from a social and moral point of view. Once the innovation has been implemented, you ensure that the chosen values are better off than before. We call this *responsible innovation*.

With responsible innovation, in Delft, we want to make ethics more relevant to people who want to change the world in a responsible way. This concept has been developed by a group of philosophers and ethicists in Delft since 2003. At the time the Netherlands Organisation for Scientific Research (NWO) wanted to bring ethics closer to policy. Several programmes were set up for this purpose but didn't really work. It had to be done less academically, without losing the high quality. Working in a *design-oriented* way helps with this. A great analysis should eventually be able to be explained or be specified in concrete terms, to provide a basis for the people who will eventually work with it. This had to be the guiding theme of the new programme, which

ultimately became the NWO Programme for Socially Responsible Innovation. There is also interest in responsible innovation in Brussels. Via Horizon 2020, the major research and innovation funding programme of the European Commission (EC), 80 billion euro is being distributed. Initially, they weren't sure how to deal with social, societal, ethical, and legal issues. A task force was set up to advise on how ethical and social issues could be dealt with.

Conflicting values

When you start innovating based on your values, you notice that they are often at odds with each other. Openness, for example, is important, but so is privacy. How can you be open and at the same time guarantee confidentiality? How can you be efficient and at the same time respect security? Security costs money, and that makes it less efficient. With such a conflict, it is important to try to think of and design something clever so that you can comply with all these values. The first step is to put your values on the table and then to innovate in line with them.

The real innovation comes when your invention increases the number of responsibilities or obligations that can be met. If previously you could only meet one or two values, and after the introduction of your invention you can suddenly meet a larger set of values - this is moral progress.

*Real innovation is about advancing
multiple values with your design*

This method of innovation can be compared to an umbrella. Suppose you want to go for a walk outside, but it's raining - of course you want to stay dry! If you go outside anyway, you get exercise, but you get wet. Inside, you stay dry, but you don't get any exercise. The umbrella is the invention that allows you to go outside for exercise and stay dry.

It works the same way with a concept like *privacy by design*. On the one hand, you want the functionality that technology can provide; on the other, you want privacy. *Privacy respecting technologies* do exactly that. Think about non-lethal weapons like tasers. You want to neutralise an opponent, but not kill him and a taser does just that.

Major challenges

Moral innovation is needed to address the world's enormous challenges and problems. Take the United Nation's Sustainable Development Goals which operate at international, national, regional, and local level. New solutions are needed to reduce poverty and hunger and to improve access to health care. You can only really tackle them if you have a design that allows you to solve more than before.

Involving values in the design can also be applied much broader than simply for technical designs. Ultimately, processes, mechanisms, software, socio-technical systems, or institutions are all designs. A constitution is also designed. It is about designing mechanisms and incentive structures. How do you set up the incentives so that you get exactly what you want and don't provide unacceptable incentives? In the public sector in particular, this has to be done based on public values. These must be reflected in the structures, systems, and protocols. Many of the major ICT debacles in government can largely be explained by the lack of insight into values, whereby nobody has an overview or knows what they are doing all this for.

Focus on your higher purpose

To counteract this, end goals and points of orientation are needed. Within an organisation, enough awareness, skills, knowledge, opportunities, and commitment must be created to translate general values into what needs to be done. It is only when everyone knows what he or she is doing and carries it out, that it becomes a transparent process.

Take universities, for example. They are there to produce, share and disseminate knowledge. If this central aim is forgotten, projects that run counter to this social task end up being developed. For example, collaborations with commercial parties may lead to conflicts of interest. In such instances, knowledge should be leading. If a collaboration with a company means that less knowledge can be generated than would otherwise be possible, or if knowledge is taken away from society, extra justification is required. You must then ask yourself the question, 'Why are we doing this again?' It's essential that someone constantly asks these kinds of questions and keeps a sharp eye on all the processes and phases of innovation.

Innovating on democracy

There needs to be more freedom for thoughts about innovating democracy. The challenges we're currently facing extend far beyond quarters and government periods. The short-term thinking that dominates in both the public and private sectors has no place here. New tools are needed. The Hague lacks awareness of the major issues and transformations of our time. This can be seen, for example, in the lack of knowledge among new MPs about the digital platform they use. There's also a lack of urgency. Meanwhile, the geopolitical question of where the Netherlands and Europe stand and how we can retain our knowledge and expertise before others completely overtake us, remains unanswered. It needs to become clear that ICT and digital innovations are not the icing on the cake, but the cake itself. We should determine now what we want society to look like in ten or twenty-years' time. Soon it will be too late, and we'll be sorry we didn't get it right.

*Now is the moment we determine what society
will look like in 20-years' time*

The democratic mechanisms and institutions of the future need to be developed now. Citizens must be given a place in the decision-making process. This is no trivial task. We need scalable *massive open online deliberation platforms* (MOODs). Through a citizens' summit with a thousand representatives and a mayor who has their say, we need to scale up to the Dutch population. Of course, there are problems of security, hijacking, microtargeting, manipulation, nudging and so on, but ultimately it is a design challenge. We know what we have to design against, what values we have to promote and what things we have to exclude. Inclusion, participation, activation, commitment, and information are high on the agenda. We need a Wikipedia-like environment for opinions - open, dynamic, and reliable. The government needs to take the lead on this, just as it once did with the early internet, as the market will never do this. Ground-breaking innovations do not come from the market, where the main focus is on commercial things related to convenience, niceness, or amusement.

These MOODs complement or improve the existing political system. Many interesting studies are appearing on how deliberation between citizens can solve many of our problems. You're not therefore just looking for legitimacy

and justification, you're also using the wisdom of the crowd. Authoritarian regimes are emerging all over the world. We need to work on an antidote by using the democracy of the 21st century which will take at least 5 to 10 years. This means we need to start now with innovation trajectories for democracy. The internet once started with a democratic ideology - it is democratic architecture par excellence. Promises have gone unfulfilled for 50 years and political innovations are not happening.

This can only be achieved by once again designing for the citizen. If you don't, commercial parties will take over the design space, and this will have consequences. Public values will be lost from sight and clickbait and *dark patterns* will be used to achieve quarterly targets - anything to maximize sales.

Innovation should be about our biggest challenges. Innovate for democracy! You will be doing the world a great service!





Prof. dr. Victor Bekkers

The past can teach
us a lot about
how to deal with
innovation today

#collective learning capacity
#knowledge infrastructures
#democratic innovation



Prof. dr. Victor Bekkers

Professor of Public Administration at Erasmus University, Rotterdam. Victor's research focuses on the introduction and use of ICT and (social) media within policy processes and the (social) innovation challenges resulting from these processes. He is also Dean of the Erasmus School of Social and Behavioural Sciences (ESSB).

In a conceptual sense, many insights that were developed in the first period of thinking about the political-administrative and organizational significance of ICT in government are still reflected today. Between 1988 and 2000, I participated in the Computerization in Public Administration research programme. There I focused on how ICT affects the management ambitions of the Government and how ICT impacts the boundaries of organizations, as technology networks increasingly work across those boundaries. Following this, I focused on the role of ICT in service provision (e-government) and later, the use of visual technology for policy processes. Many of the insights I discovered during that time are still relevant today.

Insights from the 90s

Technology is still being used to strengthen the Government's power of intervention in society. ICT contributes to the strengthening of a more cybernetic governance model, in which you try to gain an insight into, and an overview of social developments from a central point and then try to respond to them. At the same time, you see that technology is also capable of making connections and creating networks, and therefore also of connecting more local intelligence. All of that still applies, just like the idea that technology is not neutral, but is formed through a process of interaction with relevant stakeholders.

Currently, the most important innovation themes and challenges are closely linked with major societal challenges, such as climate, climate control, energy transition, health, and the quality and accessibility of education. These include the quality of service provision and the tension between service provision, supervision, and enforcement. But also, in a broader sense, participation and the democratic legitimacy of government, and the extent to which technology contributes or does not contribute to trust in that same government.

Using ideas developed on social media is a challenge

In the 1990s in particular, alongside the digital services route there was a very explicit route for democratic innovation, for example, when setting up digital discussion platforms. Around 2000, this interest began to wane. This was partly due to the strong emphasis on making services more efficient, but also because from the end of the 2000s onwards there was a rise in social media. Social media became a kind of discussion platform in its own right. The big challenge was whether you could make use of the ideas that were developed there. In addition, a kind of *closed shop* was formed on social media, where people with different opinions didn't really exchange ideas. The focus on how you can use technology to strengthen the democratic process should be higher on the agenda.

When the project is over, it collapses

In early 2000, the Ministry of the Interior developed, what was known as, an ICT opportunity map for a number of social themes. It would be interesting to examine what happened with those opportunity maps and what did or did not get off the ground. In the Netherlands, we are quite capable of defining all kinds of relatively isolated projects. We gather people and resources, but once the project is completed, it collapses like a soufflé. Scaling up the insights and translating them into other domains is still a challenge. This is not so much to do with technology, but more with the *policy window* that has to be open in other municipalities or regions in order to do something with these technological applications. The key is to stimulate and facilitate a collective learning capacity within certain sectors.

*I see things that make me think
"We've already looked into that!"*

When setting up projects, insufficient thought is given to diffusion and scaling up. The institutional memory within the government is poorly developed. I often see things that make me think, 'We've already looked into that!'. Policy makers change positions relatively quickly and we do not think enough about the knowledge infrastructure required to secure and further develop the knowledge. The strict division between policy and implementation has resulted in a completely separate development of the knowledge agenda. Agencies such as DUO used to carry out implementation reviews - what does this mean for working practice? I wonder if this still happens, but above all, if any consequences are drawn from it? This says something about our ability to learn.

Long-term visions are no longer being developed. The Ministry of the Interior, for example, changes the sign from Digital Government to Digital Society. A programme is set up for this, but then another government comes along, and it disappears. This means that you are stuck with observations instead of achieving a comprehensive vision. The same goes for the whole series of failures in ICT- a lot of knowledge is lost, and people start all over again. The same critical success and failure factors are repeated, and there is little political attention for these kinds of issues. The focus is always on avoiding incidents. There is a naive belief in the manufacturability of technology and how technology can be used to solve all sorts of social issues. Now, for the first time, there is a committee for Digital Affairs. This is a good first step, but Parliamentary Group Leaders should sit on it. After all, they also sit on the Commission for the Intelligence and Security Services, which deals with the security of the Netherlands as a state. ICT should also be a top priority. Information technology has penetrated so far into the functioning of our society and state that it could lead to a significant security and stability problem if something were to happen to it.

The workshop method

When tackling *wicked problems*, I have always advocated using a more design-like approach. This allows you to replicate a living lab-like situation. At the Centre for Public Innovation, linked to Erasmus University and Risbo (an independent centre for education research and training), we used to work

with the studio method. The idea behind this is that you develop technological solutions that are better aligned with the wishes and needs of relevant stakeholders. In a number of projects, we examined the concrete problems that certain stakeholders were facing, for example, with regard to quality of life in certain neighbourhoods. From there you can link or develop certain technological solutions. We applied this to the Ministry of the Interior's opportunity map for the liveability of neighbourhoods and for productivity gains in home care. This approach can be very successful, but you do need dedicated people, and political support.

There must be a problem owner who paves the way to do these things. Sometimes that is the Government, sometimes it is not - but the Government does need to appreciate the seriousness of the situation and facilitate the setting which enables relevant stakeholders to come together. This person must be willing to share his network, invite people and provide facilities.

Involve citizens

To improve the involvement of citizens in processes and therefore achieve increased adoption and diffusion of government initiatives, citizens should be explicitly involved in the process from the beginning. You should not only look for citizens who look like you but take social diversity into account. This includes the people who are only able to articulate their own interests to a limited extent. These people need to be actively approached and it should be explained why it is important that their experiences are included. For this, you must adapt and try to connect to their frame of reference. In several countries, including Barcelona and the Danish Design Centre in Copenhagen, Citylabs exist, with primarily aim of involving citizens. In the Netherlands, this isn't done so openly; we fall back into the old trap. There are experimental projects, and that's it. Usually there is funding for four years and then it stops.

Political backing is essential, so that, in the event of cutbacks, your project is not the first to be cut

Political backing

It is important to secure longer-term funding. We used to have this in the form of the natural gas funds, which were often used for long-term developments. It is important to have long-term commitment from the Government and

knowledge institutions for staffing the knowledge infrastructures you need. And there needs to be a certain level of employee turnover, so that the same people don't stay around for ten or fifteen years. You build this up gradually, so that you get gradual or cyclical rejuvenation. And, of course, the political backing for the long term, so that it doesn't become the first project to get the chop when cuts have to be made. Why not start by entering a long-term commitment, and make the link to policy development from there?

Accept that things will go wrong - that's part of trial and error

Accept that things will go wrong - that's part of trial and error. The credit crisis forced the government to turn inwards, to dominantly embrace the efficiency paradigm, to completely strip away services and let them be taken over by algorithms. Now we are seeing the limits of this. At the same time, COVID-19 and other crises such as climate change, an external perspective of what technology means for societal challenges is coming back in full force. In science, the importance of creating social impact has become increasingly essential. I hope that we are now able to make this step permanent.





Prof. dr. ing. Bram Klievink

If you want to learn
how to innovate
with value, you must
allow for mistakes

#digitization #public values
#learning requirements #involve science



Prof. dr. ing. Bram Klievink

Professor of Public Administration, with a special focus on digitisation and public policy. Bram is an expert on the interaction between digitization and government and investigates how digital innovations both challenge and benefit established public administration practices and institutions.

Digitalisation is bringing about changes in society – we are all familiar with the likes of Airbnb, Uber, or scooter sharing. For governments, this requires policy innovation as well as innovation in the role the government plays. This is the fine line between challenging a government and a government that also promotes innovation in society. Governments want to innovate, for example to reduce CO2 emissions, but existing policy often stands in the way. This makes it difficult for a government to sit down at the table and discuss innovation processes. On the one hand, it is involved in discussions, for example to find out how lorries can be made twice as long in order to reduce CO2 emissions. On the other hand, the government needs to decide whether such long trucks are welcome on public roads. The answer to this is lengthy ‘no’.

Data-driven innovations

Innovations can of course, also help governments to make progress. We're primarily concerned with data-driven innovations. These are innovations which, based on more and better data, can be monitored more closely as you have a better understanding of the population and the risk, instead of risks which only manifest themselves physically. It would be more effective to evaluate new policies using real-time data rather than waiting to conduct a survey after two years.

*Over recent years, a cautionary finger
has been raised*

The tech sector has been pushing artificial intelligence and 'big' data, but over recent years a cautionary finger has been raised: Watch out, we are throwing our values out of the window with this. The challenge for the coming few years is to restore a sense of reality. Many of these algorithms are not that advanced and will not replace the decision maker. They play more of an intermediary role in processing data into manageable information. That is not to say that there are no risks or that there is no bias, because algorithms are sometimes inscrutable and present all sorts of challenges which cannot always be resolved with technology. Without doubt, they also interfere with the work of civil servants and decision makers, but not by removing the human decision maker from the field, and with him all fairness and privacy. There will be much debate in the near future, not only about the technical implementation, but also about issues relating to rules and guidelines.

General regulation

In the near future, the European Commission (EC) will publish regulations for Artificial Intelligence (AI). Guidelines issued by the Dutch government already exist. However, these regulations are still quite general. Take, for example, a municipality that wants to develop a subsidy policy for 'greening' gardens. For this purpose, the municipality could analyse aerial images with an algorithm to see what area of gardens is paved. What does this regulation mean for them? If it is possible to calculate how much greener gardens have become since the introduction of a subsidy, you could also go a step further and link the data to the municipal personal records database. Which houses do families with children live in, and what kind of incentives would they respond to? It's easy to find yourself on dangerous ground, where you always need to consider what is in the best public interest and weigh up the benefits for doing or not doing something. We all stand to gain if the water discharge from cities is improved, but at the same time people sacrifice privacy. There is also the question of whether it matters if municipalities do this themselves, or if it is done by the Land Registry or a private party. This requires constant consideration and a certain level of tolerance for local complexity.

To a certain degree, we can still speak of techno-optimism, the idea that we can solve challenges around public values such as privacy, justice, and equality with technology. There are high expectations of applications such as explainable AI, where the steps AI takes can be followed by humans. At the same time, there is also pessimism about certain technological applications. For example, the EU wanted to ban facial recognition. I believe both sides are dangerous when they are too extreme. Google wasn't concerned if the EU banned it - they could continue experimenting and if the EC came up with something five years later, Google would already be ten years ahead. If you want to learn how to innovate with value, you must experiment with it. By categorically saying no to certain technologies, you cannot learn what variants, risks, or limitations there are. As a result, you don't discover under what conditions or for what tasks you should or should not use such technologies.

*If you want to learn how to innovate with value,
you have to experiment instead of
categorically ruling things out*

Problem analysis is currently often very limited. Data analysts and end users in implementation or policy sometimes talk with cross-purposes, and know too little about each other's practice, meaning that the analysis doesn't provide the right insights or is not used effectively. This prevents problem analysis from getting any further. Pilots should solve this problem, but I see many pilots that are set up based on the idea that data exists, and if we apply a bunch of data scientists, a miracle will happen. It is important to apply realism by focusing on learning, in the organization, on the policy and the techniques, in context. You need pilots for this.

Explanation of the requirements and role of pilots

Governments must research which techniques can or cannot be used in specific cases. You don't need to fully understand how a chatbot on a government website works, when it is only intended to produce some efficiency gains. This is not however the case if you want to prioritise youth unemployment policy, in which case you need to know exactly what data is fed into it and what the role of the patterns that are recognised is. The results may be good, but if we cannot explain what is happening, this could be a valid

reason not to implement it. It is important to determine what level of explanation requirements should be attached to specific situations. For example, should the general public, a judge, an IT auditor, or a municipal councillor be able to understand it? Pilots are crucial for this.

This means that pilots should not be a hackathon, where you provide a dataset and say, 'Do something with it!'. They should aim to combine many disciplines, including administrative, legal, normative, technical, and methodological. Good pilots also involve the user of the algorithm or the resulting insights from the outset. Whether this is ministerial policy departments, municipalities, police officers or caseworkers in youth care. You want to know how an innovation affects their work process. In fraud detection, a system can change the way people work in such a way that they no longer look at where the fraud is occurring but try to prove that the list of the 50 biggest risk cases supplied is correct. A missing receipt that previously wouldn't have set off alarm bells is suddenly seen as proof that the system is correct and that this person must be committing fraud. What seems like a subtle change can have major consequences. You must be alert to this.

*You can't put a hundred people at the table
to make two ends meet*

The tricky thing is that you are surrendering one perfect rationality for another - the idea that it's possible to have a perfect overview of all the caveats, ifs and buts that play a role. You can bring civilians, ethicists, lawyers, and technical experts to the table, but it will still take more than their interdisciplinary expertise to make them notice something. Nor can you put a hundred people at the table to make two ends meet. What can work, though, is a kind of internal test where you examine all applications following a standard method and clearly defined steps. Provide a list to check for undesirable effects, bias, and usability or otherwise.

In addition, there is often the idea that a project should be closed off until it has reached a certain level of maturity. This can be relevant for some pilots, for example, if people have the idea that the project is about settling accounts. They may then say something else because they are afraid of being judged. This is a pity, because you can learn a lot by making it very explicit. It's vital to

make it clear beforehand that it's not about assigning blame. The Air Force, for example, has made a lot of progress in terms of safety by not pointing the finger of blame at the pilot when an aircraft crashes, but by being open and looking for lessons to be learned. If you interview a pilot with this approach in mind, the conversation will be completely different. Once this culture has been instilled, it will benefit you in the long run.





Prof. dr. Ard-Pieter de Man

The technology is there,
now organizations
need to change
to be able to apply it

#organizational change #agile #ecosystem



Prof. dr. Ard-Pieter de Man

Professor of Management Studies at the Vrije Universiteit Amsterdam. Ard-Pieter is an expert in the field of alliances, ecosystems, networking, new organisational forms, open innovation, and partnerships, and has published fifteen books and dozens of articles. Central to his work is how organisations can change and best adapt to the ever-changing demands of the marketplace.

Organisational forms are undergoing a major overhaul due to innovation and digitalisation. But when do you apply agile or holacracy and what exactly is a platform organisation? If you take a good look at new organizational forms and models, you arrive at 'tech trinity' - a trio of agile, platform and ecosystems. In both research and practice, often only one of these three areas are examined at a time. Employees of companies practicing agile will be aware that what they make eventually ends up on a platform, but they don't really understand it. The same goes for ecosystems, even though the three things are connected.

I'm now doing applied research into how these different elements are connected. For this I am preparing case studies of a number of organisations, such as Philips, as well as non-profit institutions. How do they make the transition from a traditional organisation to a place where agile, platform, ecosystems and the internal organisation are completely attuned to each other?

It revolves around the question of how best to organise the internal organisation to, for example, manage an ecosystem or to work through a platform. Several organisations are now employing people to help adopt such an ecosystem. For example, they are taking stock of the problems that partners encounter or investigating what future value propositions could be of interest to all parties.

Those employees form the bridge between the ecosystem and how an agile organisation can develop those kinds of solutions. You see separate organisational models or even separate departments emerging for this. These insights then end up on a kind of roadmap. By communicating this to the outside world, partners get clarity about which functionalities are in the pipeline. At the same time, it also provides the internal organisation with direction on what needs to be built in the coming period. In this way, you keep your own organisation focused on the why. Just telling people to build something is not enough. The story behind why that specific thing was chosen is just as important as the technical specifications. This is sometimes forgotten.

Ensure there's a bridge between your organisation and ecosystem

In addition to the organisational side, which involves fine-tuning the ecosystem, the internal organisation and the platform, there is also a purely digital side. This includes a variety of mechanisms, such as the online business models that other parties can tap into with their products. Take the Google and Apple App stores, for example. They apply all kinds of conditions that determine what you can and cannot do. Because the tech companies monitor this so closely, they are able to make adjustments and maintain the quality of the platform. Think, for example, of new software updates that developers must accommodate in their apps. If they fail to do so, this can be made visible to customers on the platform. This lets them know that the app is no longer up to date. This type of technological trick allows administrators to influence the content of the ecosystem.

Moving away from silos

Many organisations are now trying to remove silos. They are often neatly divided into a variety of separate divisions, which nine times out of ten are diametrically opposed to what the market wants. Stepping away from this is a gradual process, but you really see agile thinking emerging. Ideally, there will eventually be a number of final propositions which can be taken care of by an agile team, including the development of the value proposition, the customer journey, build and managing. This is what everyone strives for, but only a certain number of organizations have managed to, or are able to achieve it. Breaking down silos is a sizeable problem. It often comes down to cleaning

up the entire IT infrastructure, which is the limiting factor because it contains a lot of legacy. If you really want to work agile, you must have a simple, modular IT structure instead of the spaghetti that some organisations have. Ultimately, this is a key determinant of how flexibly you can respond to the needs of your ecosystem and your customers in terms of new functionality. Everybody is currently struggling with what this process should look like and how it can be implemented.

For agile working you need a simple, modular IT structure

A good example of a company that has started to address this challenge is ING. They've done a very good job of cleaning up and streamlining their IT, which makes it easier to start working with Spotify-like models. First, they asked themselves: How are we structured internally? Are we ready for this kind of structure? At a certain point, ING was able to lay off a lot of people and subsequently hire new people with an agile mindset. When an organisation is unable to do this, it has a much harder game to play. In the public sector, of course, this is difficult. Firing people doesn't just happen, but this means you're left with a group of people who are unable to make the step.

There are however also good examples within the public sector. At VNG, for example, a group of people simply started working on new functionalities. But there is a limit to this flexibility. Ultimately, these functionalities will have to be put to use, and municipalities will have to follow suit, which then raises bigger administrative questions, for example, about financing. At this senior level there is often a lack of knowledge about this kind of technology and most certainly of the impacts it could have on the organisation. This also applies to the financing of this kind of project. When one platform is built, it can be used by up to ten business units within an organisation. It's the same for municipalities - they could all use one common platform. The problem, however, lies with how the financing is arranged for each municipality. This is a huge barrier to doing anything efficiently. It's hard to imagine taking money away from each municipality and investing it in a joint platform. These are very difficult questions to answer when it comes to governing and managing such organisations, and they won't be resolved in just a few days.

Organisational bottlenecks

It's not just about the technology alone, but also about how you deal with it as an organisation. Digitalisation is too focussed on bits and bytes. This is clearly demonstrated by the new EU Horizon Europe programme, for example. This is of course, important, but certainly neither the only nor the biggest problem. In terms of technology, a lot is already possible. The biggest bottleneck currently lies in organizations. This has to do with the existing structures, people, and cultures, but also with the existing management. They are all diametrically opposed to each other. When you give someone a budget as a manager, whether in a private or public enterprise, you always ask what you get in return. With agile however, there is no answer to that. You're not going to say when you want which app. No, you're going to build something with that fixed budget and then take a look in a year's time, to see how far you've got.

Just this alone is so difficult. The manager then has to explain it to his boss, who in turn has to explain it to the supervisory board or the board of directors. Everything is designed to work against this system, and this is deeply rooted in current systems and procedures. If we could simply apply the current technology that exists in organisations, it would be a gigantic step. There would be no need to invent new technology. We could get twenty years ahead with what we have available right now, before all those organisations have even changed. So instead of just investing in technology, invest in its application in organisations!

Public and private enterprises share eighty percent similarities, therefore learn from other sources!

This requires a cultural and organisational change. It may be possible to achieve this with private enterprises, but it is very difficult with government organisations due to the high degree of bureaucracy and formalisation. They don't have to change as normally they can't go bankrupt. The Government will always lag behind in development. In the public sector, people often believe that what happens in the private sector is a completely different world and irrelevant. This is however nonsense, it is eighty percent the same, which is why it is important to first learn from what is already happening in other places.

Much has already been researched and is available. It simply requires a change of mindset. For example, arrange a visit to companies such as Bol.com and Booking.com. Much of what they do can also be done in the public sector.

Booking.com, for example, is a master at managing an ecosystem. They gather good ideas there and together with partners and internally they determine the next steps. This is also clearly motivated and communicated. For example, they employ people who visit hotels to see how partners work with Booking's own systems. This way they see what they are doing, and identify the problems they encounter and potential opportunities. It's really not difficult to generate new ideas. There is plenty of creativity. The problem lies in determining which of those ideas you are going to select. How do you do this in a way that keeps everyone on board? At the same time, you mustn't be too afraid that some partners will drop out. The development of a new business model or process is a step-by-step process. Sometimes partners drop out, for example because the ultimate financial, social, or environmental value is too low for them. But new partners join just as easily.

Question what is actually possible

Ultimately, you also must have the courage to say to the outside world that you are just going to try something. You can always fine-tune it over the course of time. There is something scary about that, of course, launching something that is not quite finished or that carries risks. But if an experiment fails, it's a one off, as long as you learn from it. A failed experiment is always matched by a successful one. Slowly but surely, people's mindset is changing and they're starting to think it's normal. The government has a harder culture of judgement than the business world. If there is a failure, an alderman or a minister has to resign immediately. That's a bad system. The further polarisation of politics doesn't help either.

It is very important to learn across experiments. There are experiments going on across the Dutch public sector, such as at VNG. There is plenty of room to experiment, however the lessons learned are all too often lost. For example, chart ten cases of the introduction of agile in government, compare them in a structured way and extract the right lessons. There is currently no budget for this, but the opportunities for how you organise this transformation are there

for the taking. It is essential for developing a connection and transferring knowledge about opportunities and limitations. There are of course, numerous rules and restrictions that make it difficult, but still there are people who do it. Ask what is actually possible, instead of focussing on what isn't possible.





Prof. dr. Henk Volberda

Investing in technology
means nothing without
investing in people
and the organization

#system innovation #leadership
#digital revolution #innovations wheel of five



Prof. dr. Henk Volberda

Professor of Strategy & Innovation at the Amsterdam Business School, Scientific Director at the Amsterdam Centre for Business Innovation, Member of the Supervisory Board of NXP Semiconductors Netherlands and Member of the Scientific Advisory Committee of the Netherlands Defence Academy. Henk is an expert in the field of hyper-competition, technological disruption, new business models, strategic flexibility, innovation management and new organisational forms.

As a society we are in the middle of the fourth industrial revolution. The first industrial revolution started with steam-driven machines, followed by the second industrial revolution with the advent of electricity, mass production and large-scale organizations. Although many companies have not yet emerged from the third revolution, the rise and application of IT, the fourth industrial revolution is in full swing. Technologies such as artificial intelligence, robotization, cloud computing, 3D printing, and big data - also known as key technologies in the Netherlands - are gaining ground.

In the beginning, such technologies are very promising. Opportunities arise, but expectations need to be adjusted after some time. Blockchain is an example of this. With a view to the long term, you have to invest in this type of technology now, but if I look at it from a business perspective at micro level, I see that many companies are still in the denial phase. They're still struggling with the COVID-19 pandemic or have other short-term problems and focus primarily on profitability and efficiency. And this happening when it is important that they invest in the long term, such as in R&D and ICT. This requires a different attitude from management and the organization as a whole.

Old, bureaucratic forms of organisation

I recently published an article about developing strategies in the digital age, overcoming cognitive barriers, revising routines, and introducing new forms of organisation. To get to this point, companies need to realize that they will be working with new technologies and business models in the future. But as long as performance is reasonable, companies tend not to think about it. Old, bureaucratic forms of organization also block innovation. If you look at what connects new tech companies like Spotify, Amazon, Apple, and Google, it is not their technology, but their organizational form. They are flat, circular organisations with a high degree of self-organisation that works very agile. Innovation is much easier in such structures.

The challenge of digital transformation is more related to the non-technological aspects

For me, the challenge of digital transformation is not just the technology. Technology offers many possibilities, but companies only use about five percent of it. The bottleneck is more related to the non-technological aspects of innovation. I have identified five elements that are essential.

The five elements of innovation

First, you have innovation 1.0. This means that you need to understand and absorb technologies. You must invest in accumulated knowledge. For example, you need to understand something about the cloud before you know what you can do with it. This is followed by innovation 2.0, where the employees are involved, for example through training. If there is no investment in the skills of employees, technology delivers nothing. Servant leadership is at the core of innovation 3.0. A more transactional leader focuses on the short term, on factors such as efficiency, control and management. This isn't breeding ground for innovation. Transformational leaders, like Steve Jobs, have a vision and think long term. However, they demand a lot from their employees and are not always open to ideas from below. In servant leadership, **the employee comes first, the customer second**. The knowledge worker is central, and the leader takes a side stance. In addition to technology, skilled employees, and good leadership, you also need a good organisational structure - innovation 4.0 - structures such as agile work and self-organisation. We don't know much about these organisational structures yet, but I'm

carrying out a study at VGZ where, as an experiment, we are allowing some teams work with self-organisation and others not. We will follow these teams for two years.

The final element, innovation 5.0, is about open innovation. This means that you no longer work via a closed sequential model, whereby you invest in R&D to develop new products or services, produce them, and finally let marketing roll them out. That's a traditional, but generally slow form of innovation. Innovative companies often work with 1.0 versions that are quickly brought to market and improved based on feedback - the so-called 'fail fast and learn fast' philosophy. Innovation here means not only achieving success by developing a patent internally, but also by internalising and scaling up an innovation from an external organisation - for example, a Swedish company that makes recycled carpet.

The ecosystem surrounding an innovation is very important. Many failed innovations, such as the Sony e-reader, didn't take this into account. If you compete with newspapers, they're unlikely to provide you with content, and you won't achieve success. If, on the other hand, you give others the opportunity to build a platform with you, as Kindle did, then innovation is possible. Companies that look at things through a narrow lens only see their customers and suppliers, and not the broader ecosystem. It is also important whether companies innovate incrementally, improving products or services for existing markets, or radically. In the latter case, new services are developed for new markets, which is therefore a lot more exciting.

When innovating, it is important to define your ecosystem broadly. Traditionally, companies only innovate when the customer wants it. But a better approach is to ask yourself what you need to do to get the customer you don't have yet. Take Michelin, for example, which developed a tire that allows you to continue driving for one hundred miles even if the tyre is flat. This was a fantastic innovation, especially for large trucks. However, the tyre was not initially successful because Michelin did not involve servicing companies. It transpired that they found the tyre very annoying. By later involving the servicing companies in the process, the tyre is now not only used on trucks, but also on cars.

Despite this, the typical Dutch company only innovates if the customer wants it. This is evident from the annual innovation monitor that I compile in collaboration with the Amsterdam Centre for Business, research institute SEO, and the Ministry of Economic Affairs. As a result, they will never

innovate radically. Companies that collaborate with knowledge institutions or consultants, outside the direct ecosystem, are much more innovative. They have a greater capacity for absorbing knowledge and broader contacts.

Faster digitalisation due to COVID-19

The Future of Jobs report shows that by 2025 almost half of all activities will no longer be carried out by people, but by an algorithm, device, or machine. In 2020, this was still a third, so that's a rapid development. Working from home is also gaining ground - 70 percent of Dutch companies say they will continue with hybrid working even post COVID-19. Some 60 percent of companies have started experimenting with online business models. COVID-19 has given digitisation a huge boost. What previously seemed impossible has now become common practice. However, organizations that didn't invest, are falling further behind. The Netherlands scores very well in the field of digital skills and remote working. This was one of the reasons why, in its Global Competitiveness Report, the World Economic Forum predicted that the Netherlands would emerge fastest from recession, together with Scandinavian countries. The digitisation of the Government also scores reasonably well.

No evidence yet of putting your money where your mouth is

The basic conditions in the Netherlands are therefore good. I primarily see issues with the level of digital transformation of individual companies and government organisations. There's still a lot of advantages to be won in this area. I have a reasonably positive picture, except when it comes to the average level investment made in ICT and R&D in the Netherlands. According to the Lisbon Agenda, adopted by the EU in 2000, we should be investing 3.5% of GDP in ICT and R&D. At that time the Netherlands was between 1 to 1.5 percent. This has since risen to 2.16 percent, with just over half coming from private investment. Countries like Finland, Switzerland, and Israel the rate is 3.5 to 4 percent. So, we talk a lot about innovation, but there is no real evidence of 'putting your money where your mouth is'.

We do have Invest-NL and a growth fund of 25 billion euros. But that is nothing compared to Germany, which invests 19 billion euros annually in Industry 4.0, or smart industry alone. Of course, Germany is a much larger country, but we

should be thinking more about how we will be making our money in 20 or 30 years. Digitalization and the platform economy will be very important.

(Too) cautious innovation policy

For a long time, the idea was that the government should only intervene if the market fails. If the market is competitive, the logic was that innovation will happen of its own accord. As a result, we were very cautious regarding innovation policy. Top sectors are being examined, and we have fiscal policies such as WBSO (a tax credit for research and innovation) and the Innovatiebox - but I don't think it's enough. When we look at Silicon Valley, we don't realise that defence has made huge investments there, including in the internet. The Government should take a leading role and make initial investments in system innovations. This is happening, for example in the field of quantum computing in Delft and Amsterdam.

There is currently a difference between EU innovation policy, which is primarily aimed at solving societal challenges, and Dutch policy. The latter is primarily aimed at top sectors, although that focus is slowly beginning to shift towards the societal field.

Making innovation attractive to key players

The question is how to finance it. If you look at agriculture, for example, and want to create a closed chain, you need to make it attractive to key players in the sector. Consider, for example, true pricing, which includes social and environmental costs in the product price. This makes it attractive for agricultural companies to invest in closed-loop farming. It is only a small example, but it does demonstrate how system innovation can work. The same applies to the energy transition, where you need to ensure that CO2 emissions are factored in. This is happening on a small scale, but the prices are low. The Government can play an important role through regulation, for example by setting very strict rules for emissions, which will then stimulate the purchase of electric cars.

Companies need good regulatory frameworks and system innovations, and the government must play a pioneering role in this. Right now, those systems are not yet in place, but I see opportunities. Governments are often just too late. At the same time, you see that companies like Airbnb and Uber make use of this temporary uncertainty, after which the government is forced to respond with legislation. Airbnb and Uber then make some concessions, but by then they have already profited, which is why it is so important that the Government quickly sets clear frameworks.



Prof. dr. Albert Meijer

Successful innovation requires both renewal and perpetuation

#connection #collaboration #ownership
#system responsibility



Prof. dr. Albert Meijer

Professor of Public Innovation at Utrecht University. Albert is an expert on public innovation in the digital age and has several publications in the field of public innovation, smart cities, ICT, data, and social media in the public sector. Albert is also chairman of the Public Management Group, Editor-in-Chief of the journal Information Polity and Chairman of the European Group for Public Administration's Permanent Study Group for E-Government.

Why do governments innovate? For a long time, the idea prevailed that the Government had to blindly follow all technological movements in society. The argument was that if the world digitizes, the Government can't afford to lag behind. Why this would be a bad thing, however, was left open to interpretation. There was only a tenuous link between the value of digitisation and what it could deliver in terms of tackling social issues. For example, how does digitization contribute to the United Nations' *Sustainable Development Goals* (SDGs)? Or how can they be an answer to *wicked problems* - social and cultural problems that are difficult to solve because of their complex nature and interconnection? This link needs to be strengthened.

Innovation is broader than is often thought. It is not synonymous with the use of new technology. That certainly plays an important role within innovation processes, but there are also all sorts of innovation that have nothing to do with technology.

Content and process

There are two important lines regarding the contribution that innovation can make to society. On the one hand, there is the content line, whereby we work

towards certain desirable outcomes. For example, a more sustainable or inclusive society. On the other hand, there is the process line. This is about innovation in democratic decision-making. These two lines can sometimes be at odds with each other. Innovation in terms of content can provoke democratic resistance. Yet these two lines must be connected. To effectively contribute to the SDGs and tackle wicked problems, you need collaborative innovation. The Government plays an important central role in this, but ultimately it is about collaboration with citizens, civic social organizations, and businesses.

You must both perpetuate and renew

The number of experiments in the public sector has increased enormously over the past ten years. There are countless *living labs* and pilots, but their value is still very limited. This is because there is only a limited understanding of the barriers that need to be overcome to transform an experiment into a permanent practice. Organizations need to develop ambidexterity, two-handedness. Every innovation dynamic involves both perpetuation and renewal. There is a paradoxical relationship between the two, as perpetuation appears to be at odds with renewal. Yet both must take place. Organizations must find a way to shape their innovation processes in such a way that they are simultaneously good at both.

Consider this: In an organization, you have a creative type with hipster glasses working on a skippy ball. Opposite him is an accountant in a dull grey suit. It's quite difficult for these two to work well together and they don't speak each other's language. Despite this, they ultimately must work together to create value for their organisation. If you only have the accountant, your basics may be in order, but there is no way you can spark the innovation needed to deal with wicked problems. And if you only have the hipster type, a host of creative things may come out of it, but they will never lead to practices that are legally appropriate, designed to fit the organisation, and offer the added value that is needed. Many people only think of innovation as that weird creative type on a skippy ball. But in fact, innovation is all about introducing a large amount of structure. Finding the right balance between freedom and structure isn't easy. In a relatively uniform organisation this already causes tensions and in collaborative governance it is even more complicated because of the variety of positions within the partnership.

Ownership

An important issue in collaborative innovation is ownership. Take for instance, Snuffelfiets (Sniffer bike). In this experiment in the Province of Utrecht, a kind of sensor is attached to the handlebars of a bicycle. As citizens cycle around, air measurements can be taken throughout the province. This falls under the concept of *citizen science*, whereby citizens contribute to and can access the data. They can then use the data to ask questions about air quality. It also provides a basis for citizens who want to campaign for better air quality. For the Province of Utrecht, it has become a pet project, as it can contribute to a more sustainable society and also involves citizens and technology. The project got off to a reasonably good start. The National Institute for Public Health and the Environment has been asked to validate the data and a company is involved in managing the data. The first phase of the project was deliberately made very open and exploratory. This happens more often in innovation processes, to enable them to move in any direction.

Consider who owns an innovation

The question has now arisen about who owns the Snuffelfiets, and who does the data belong to? It is clearly open data, but ultimately it is managed by certain companies. There are also questions about who owns the technology and the system. These are important questions concerning ownership. How can you collaborate in a way that everyone gets enough out of it? There are lawyers within the province who say that this could have been arranged much better from the outset, to have avoided this problem. Innovators, however, say that it couldn't have been arranged at the start because they didn't yet know what direction it would be moving in. They feel that you can't create the required sense of trust between different organisations if you start by legally sealing everything off. This leads to tension developing. On the one hand, you have the creative climate and the freedom needed at the outset to make the Snuffelfiets successful. On the other, you need to find a way of firmly embedding the innovation, otherwise the Government will bear only the financial risks and the business community will make off with the ownership and profits.

Making connections

This tension can be reduced by improving connections between the various stages of the innovation process, even if a project is extremely sequential and

various key players are only involved in certain stages. It may not be necessary to involve a legal expert beforehand, but make sure that this is done in good time. This way, you can ensure that when business matters ultimately have to be settled, the right steps have already been taken. These connecting lines must be created throughout the process, so that at the next stage you aren't confronted by problems from an earlier stage.

It is also important to evaluate periodically. In doing so, we need to ask whether the innovation is delivering what it should and whether this fits well within the democratic rule of law. These two elements should be linked more closely. This doesn't mean that you need to be evaluating constantly, but it does mean that you must define a moment in advance to adjust or terminate the experiment.

Digitisation adds elements to governance rather than replacing everything

Following the lead of the business world, government's sometimes hint that they're planning to radically transform from a bureaucracy to a network or platform government. This whole notion is slightly exaggerated. It can be interpreted more in terms of layering, where various forms of control are present simultaneously and where new forms are added. In this sense, the idea that a government operates bureaucratically is still very relevant. We want organisations to be bureaucratic. Take for example COVID-19 vaccinations - you need these to be carefully registered and tracked in a reliable and predictable way. At the same time, new forms are emerging. Digital transformation adds elements to governance but doesn't replace everything. That's a misconception that sometimes prevails.

Systemic responsibility

Governments ultimately have a systemic responsibility that is different from the responsibility of other parties involved. Furthermore, it is the only party that has a generic mandate based on a democratic process. Governments are therefore responsible for public innovation systems - for generating ideas and experimenting with them. These ideas then need to be institutionalized and checked against ethical standards and values. This is overall systemic responsibility, but it doesn't mean that the government must design all innovations itself.

The Government must ensure that the right connections are made. Sometimes the Government will be an active partner, as with the Snuffelfiets, but it's not always necessary. Systemic responsibility doesn't mean that the Government is responsible for each individual process. Within it, various sub-responsibilities can be identified and allocated to different key players. This is an interesting dynamic. How can you ensure that the system functions properly, without wanting to control everything yourself? With collaborative governance, this is an issue for the Government. It's known as meta-governance in Denmark. The Government doesn't solve problems on its own but creates the structure to make this happen.





Prof dr. ir. Marijn Janssen

Digitisation can make governments more open

#open government #open data
#transparency #feedback



Prof dr. ir. Marijn Janssen

Professor of ICT & Governance at the Faculty of Technology, Governance & Management at Delft University of Technology. Marijn focuses on the interaction between technology and governance. This often entails situations in which public and private organizations have to collaborate and ICT offers new opportunities. A variety of solutions are feasible and socio-technical solutions are constrained due to organizational and political preferences. Marijn is also one of the most cited scholars in the field of e-governance, founding partner of Digicampus and, in addition to various other editor role, co-editor-in-chief of the global top-tier journal Government Information Quarterly (GIQ).

The government is traditionally a rather closed system. Digitisation makes it possible to transform the Government into a more open system. This requires major institutional and organisational changes. If you go back to the basics, you see that the government was once created to protect society's general interest. This is sometimes forgotten, as current affairs are clearly demonstrating. There is a threat of the Government becoming too powerful for its citizens to resist. Fortunately, there are *checks and balances* to prevent this, but it requires openness. Such openness leads not only to transparency and accountability from the Government, but also to innovation.

If a government opens up its processes, others can start thinking about improvements from a distance. This is also the case with open data - the more open the data, the more people can think about employment or the energy transition, for example. All kinds of experts and students from all over the world can contribute to solving the Government's problems. Instead of a limited number of policymakers acting as experts, the whole world can

suddenly contribute ideas. This results in wisdom of the crowds - the more intelligent people who contribute, the better the solutions. To reap those benefits, we need to start thinking in these terms. The Government will no longer operate as a closed system but will become a completely open system in which knowledge from its surroundings is used.

*The more people who join the debate,
the better the solutions*

The Netherlands has a lot of knowledge available. The universities are good, the Government employs highly educated policy makers and officials, and yet we find it difficult to make use of all that knowledge. The wheel is often reinvented, and we don't capitalise on each other's knowledge. At the same time, context is important; you cannot simply take a solution or invention from one situation and apply it to another. Adaptations are always needed. You need to understand the technology, society, and the government.

You also need to know which technologies are offered by which companies and how they can be applied. If you are going to design an innovation, you first need to analyse and investigate the current situation. This means not just using an AI algorithm, but first experimenting with what the data and algorithms do, and whether the results are socially acceptable. Design sprints and modelling offer learning opportunities and help you to come up with a better design. Digicampus is a meeting point that brings together knowledge and skills. Scientists can be involved in innovation by enthusing them with data. If they are able to extract research data from a project and publish it openly, this is a way for them to obtain knowledge.

Making data usable

Large volumes of data are often thrown onto a heap, which makes it difficult for users to find the relevant data. Using an algorithm to establish relationships can also result in correlations that don't exist. Human intelligence should be applied to understand relationships. You need to make it easy for people to use the data. The solution is to build a dashboard to access the data. Avoid the classic fallacy of doing something because it is technically possible and not with the user in mind. First consider who the target group is and whether a dashboard is the right tool. It helps if you have a clear

understanding of the situation, what people want and what the technology is capable of. This way, you get a tool that is much more in line with what the users want and ultimately, they can use the data more effectively.

*Directors should man the helpdesk
every now and then*

Dashboards and other projects are often the result of administrators deeming it necessary. A project team is set up to carry it out and a product is launched. But is this also what users want? How does the administrative layer know what the users want? Every Director-General and Secretary-General should spend a few hours on the helpdesk. This would expose them to the real problems. Otherwise, you're only busy with top-level work, while the reality happens at the lower levels. Ensure the gap between governance and reality is not too great.

Feedback mechanisms

Systems have become so incredibly complex that people no longer know what is happening where. People then try to throw more technology at the problem, but that solves nothing. In addition to technology, you need institutional mechanisms to help get things right and to work with the feedback. The worst thing you can do is ignore feedback, as then people stop giving it and they simply become more frustrated.

One of the institutional solutions currently doing the rounds is that there should be a Minister for ICT. But centralising complexity is a recipe for disaster. Of course, someone has to be in charge, but it is better to start in a decentralized manner and empower people. At a municipal level, institutional mechanisms have already been set up better. Municipalities are very close to their citizens and know what is really going on. They know whether poor people have no wallpaper or floor covering in their homes. This requires people to visit their homes of citizens, otherwise you'll never find out. This needs to be done physically, not online, however digitisation can then help gain more insight into this kind of problem. On a decentralized level it's also easier to cooperate with companies. At a central level, things immediately become huge and people think in terms of large-scale, bureaucratic portals. Everyone also needs to have a minimum level of knowledge about digitization

and not rely on a single person. It is naive to think that one person knows everything about digitisation and can manage it. Each manager will also have to deal with digitization and therefore a basic level of knowledge is needed as digitization has a different dynamic than managers are used to. Many opportunities still exist in this area.

Mobilising opposition and diversity

No organisation has all the knowledge in-house, but it's possible to mobilise knowledge and bring in the right people. Often a much too simplistic view is taken of problems. The same is true of open government. If you're looking for transparency - put up a dashboard and that's it. But a dashboard is not transparent at all; it can even make things less transparent. It is certainly possible to do it well, but you need to mobilize the right knowledge. You also need to mobilise opposers to help you see the reality and barriers. Identifying diversity will also lead to better results as you take more factors into account. There is no one-size-fits-all as every situation is different, but broader involvement leads to better decisions.

The complexity of governance makes scaling up difficult

You often hear that problems have been identified, but that the tools to tackle them are lacking. This is also due to the complexity of the governance. It makes it difficult to scale up initiatives and to do something about them, which is why you shouldn't centralise initiatives of this kind but ensure that an overview of all initiatives is available.

Firstly, you need to know how you want to innovate, what solutions are available, and find out what works. Only then should you invest money, which has already been earmarked, and start scaling up. This is important, as otherwise you will continue to innovate, but never be able to scale up successful innovations as there will be no budget left for them.

Thinking from a societal perspective

Society itself often has a clear idea about where the problems lie. In an open government, society must be involved. These days, initiatives already exist in which the budget is determined by society, known as open budgeting. People vote on how the money should be spent and what this should look like. That

is a completely different way of thinking. There are of course disadvantages, but it does demonstrate that we need to start thinking from the perspective of society. Technology creates new opportunities, society sees those opportunities and wants to make use of them, and that's why technology needs to be adapted. We tend to think in terms of either technology or society, but it is important to find a balance and bring the two sides together.

All in all, the Government needs to become much more open to innovation. Sometimes we don't yet know what can be done with the data, or what algorithms can be used to analyse it, so you just need to open it up. This allows it to be used and provides the Government with feedback about what can and cannot be done. And this shouldn't just happen as a one off, but also in a year's time. Nobody wants to see you build a nice application only to find that the underlying data has disappeared after a year. Providing data continuity will ensure that it remains usable in the future.





Prof dr. ir. Vareska van de Vrande

A collaboration
will only succeed
if you are prepared
to make changes

#collaboration #corporates #startups
#bridging cultural differences



Prof dr. ir. Vareska van de Vrande

Professor of Collaborative Innovation and Business Venturing at Erasmus University Rotterdam. Vareska is an expert in the field of corporate venturing and collaborative innovation, including the sourcing of external technology, venture capital investments, strategic alliances and collaborations between corporates and start-ups.

Since the turn of this century, organizations have become increasingly aware that they can't do everything internally and need to collaborate more. Innovation is more effective and smarter when it's carried out with other parties. Innovations from one sector increasingly originate from another. Electric vehicles are a prime example. BMW would never have dreamed that Google would become a competitor. Innovation increasingly requires different parties to come together, but also different types of insights.

This interdisciplinary aspect is extremely important and automatically leads to the fact that it's no longer possible to innovate alone. Last year, Erasmus University set up Erasmus Enterprise, a kind of incubator of which I am the *academic lead*. We collaborate extensively with YES! Delft, which allows us to bring technical and economic disciplines together. This helps the university to give more substance to entrepreneurship and therefore increase its social impact. One of the programmes we have launched is called SocialTech. It tackles social issues from a sociological, psychological, or medical perspective. We then look for a solution using technology.

Bridging cultural differences

Bringing different disciplines together has its challenges, due to different cultures and ways of thinking and talking. It's similar with start-ups. Corporates are often keen to work with start-ups as they have new ideas, work on

ground-breaking innovations, and employ young people full of passion and energy who want to advance quickly. Corporates have often followed the same path for years and find start-ups interesting partners. From the other perspective, start-ups need a larger party to accelerate growth and to create scale. From the innovation perspective, the two can't function without each other as they have such different strengths. Even though setting up a collaboration is so logical, it's incredibly difficult to make it truly successful. The two parties are culturally very different, organized in different ways, and have a different time horizon. A scientist like me, for example, can already look at my calendar for June next year to make an appointment, while a start-up doesn't even know if it will still exist by then.

Provide people on both sides with experience from the other side

A number of factors help to create mutual understanding and ensure that both parties understand each other's worlds and cultures. You need to clearly communicate your expectations from the collaboration and look for common ground. It also helps if you have people on both sides with experience from the other side – people with start-up experience on the corporate side, and people who have experienced corporate life on the start-up side and know how to navigate within such an organisation. This helps with mutual understanding.

Adaptability is also important. A few years ago, together with the Ministry of Economic Affairs and fifteen corporates in the Netherlands, we looked at how cooperation with start-ups could be improved. One of the outcomes was that a 30-day payment term. This seems so obvious that you wonder why we needed a project to figure it out? But some procedures and people are set in their ways. Why would you change if it works and it has always been done a certain way? But this is important if you want a collaboration to succeed. Not only do you have to have the conversation, you also need to be prepared to tackle issues and procedures.

New ways of working together

Companies are increasingly developing new ways to partner with start-ups. In the traditional model, investments were made in return for a minority stake. Now the focus is much less on owning shares or acquiring a start-up and

more on developing a partnership. This could take the form of a customer-supplier relationship or a joint or co-development, where the start-up retains its own identity and no equity stake is taken. This type of model could also work well for the Government. Governments are bound by all sorts of rules when they work together with market players, so a model which works as a partnership is easier to achieve than a traditional shareholding.

The value of collaborations cannot always be quantified

In collaborations between corporates and start-ups there is often a very clear goal. For example, in a customer-supplier relationship there is simply a purchase order and it is clear what the transaction exactly entails. It becomes more difficult if the cooperation is more focused on knowledge or innovation, where you are looking for new ideas or new technology as input for your own innovation process. This cannot always be quantified, which makes accountability more difficult. You cannot compare the investment of time and resources in such a collaboration with what it would have cost if you had done it internally. You can't know this because you simply didn't do it. Other ways of identifying value, such as knowledge, need to be considered.

The role of the Government

The Government doesn't actively invest in start-ups and this is not its task. However, the Government does have an important role to play in accelerating innovation in the early phase through subsidies and programmes. This is already happening. But this kind of funding eventually stops and then a start-up is on its own and must conquer the market. At the same time, it is often too early to approach venture capital investors. This creates a gap.

The Government could take a more active role in bridging that gap. Subsidies must serve a specific and concrete purpose and therefore have a logical end point. But there are other instruments that the Government could use to make it more attractive for venture capital to enter this phase. Regional development agencies could be given a more specific role as they are on the fringes of government and have extensive contact with private companies. It would help to have a better understanding of how an innovation ecosystem works and to find out which parties should be involved at which times.

Because of the way government is set up, we tend not to look further than our own region or national boundaries. For example, the SocialTech programme focuses on preventive care. As this is a challenging area to find funding for, you tend to start talking to municipalities because they may have a budget for tackling something in a neighbourhood. But problems like this are replicated in other places, so ideally you would tackle them more broadly. Despite this, at a national level we don't really know where to turn. And let's not lose sight of the market.

The Government plays a key role in stimulating entrepreneurship and innovation, but for sustainable entrepreneurship you need someone who is willing to pay for the solution you develop.

*A subsidy is not an isolated measure,
but it sets other things in motion*

Once you realise that innovation and solutions for large and complex social problems can't come from just one party, then you also need to accommodate this in your investment policy. A subsidy is not an isolated measure, it also sets other things in motion. What happens to the innovation after the subsidy has been granted, how do you involve others and how are the results safeguarded? These kinds of insights and other lessons need to be better documented, by both the Government and corporates. Successes are widely publicised and followed up. The things that don't work out are forgotten, even though there can be plenty to learn from them.

Science and education can help foster collaborations. For example, education plays a very important role in the way students are made to think and are brought into contact with multiple disciplines. Science can also help understand where things go wrong and identify success stories from beyond one's own region. Independent scientific research also helps to validate solutions that emerge from collaborations. This knowledge is fed back in publications, but these often go unread, which is why it's important to engage in active dialogue. Sharing knowledge and ideas is important, and this is how it can get started.





Prof dr. ir. David Langley

Create value
by sharing data
without handing
it over

#data-sharing #control #value creation
#collaboration across borders



Prof dr. ir. David Langley

Professor of Internet, Innovation & Strategy at the University of Groningen and Senior Scientific Researcher at the Department of Business Strategy at the Netherlands Organisation for Applied Scientific Research (TNO). David is an expert in the field of innovation adoption, innovation ecosystems and digital business models.

One of the great innovation themes of the future revolves around how to extract value from data while maintaining control over it. Organizations need to better understand the benefits of allowing others access to their data, as well as allowing themselves access to other people's data. There is a lot that can be done with data, provided that it is properly used and analysed. It is sometimes said that all data should be thrown onto one central heap so that everything can be combined, and AI can be applied to it. But that only creates problems. Data must be shared securely, and the owner must retain control.

There is a big difference between consumers and organizations when creating and accessing data. Consumers have become accustomed to the Google and Facebook model, where they give away their data freely, without knowing what happens to it. Companies are not so lax and want to protect their commercially sensitive data. But this protective attitude, means they don't extract all potential additional value and insights from the data. Big tech companies would have you believe that you can't create value if they can't collect all the data. But that's not true. It's entirely possible to keep your data private, while allowing others to access it securely. It's an unusual mindset - that you retain your data while allowing access under certain conditions. We are not used to being able to control data that someone else has access to. Organizations will therefore need to see examples to help them understand the benefits.

Data sharing is mainly an organisational problem

This is primarily an organizational problem. The technological solutions are already there - look at developments such as International Data Spaces and GAIA-X. These adhere to developments in the European data economy and the vision of the European Commission on how this should work. Technology is moving quicker than organizational developments. People have often not even heard of a new technology. And if they hear about it, they don't understand it. And when they do, they don't dare to take it further. There are all kinds of processes and beliefs that prevent new technology being embraced. The problem of data sharing on both a technological and an organisational level needs to be sorted, but it is the latter that is important now.

Creating value by connecting data

Connecting various sources of data can lead to completely different and new forms of value creation. This means that you can enter a service provision in different ways, which changes the resulting relationships between stakeholders. Conventional products and services can be rather static. In the future, we can respond better to what ultimately creates value for the customer. These kinds of challenges mean that you first need to break away from the way you currently work and adopt a new way. Of course, this is difficult and risky, especially for organisations that are already successful. Why would they risk it? But looking ten years into the future, you'll see that the parties who take the right steps in digitisation today, will reap the benefits.

An interesting example is the financial sector, which is now undergoing huge changes. Banks today are becoming data organizations and need to start creating much more value for their customers than simply investing money. There are huge strides being made in this transition. For example, the European payment regulation PSD2 stipulates that all financial organizations must provide data access to competitors and peers in a secure manner. This has led to fintech innovations, such as the popular iDEAL and Tikkie payment platforms, which were able to be built precisely because different parties allowed access to their data.

The algorithm comes to the data instead of the other way around

An entirely different development can be seen in the Dutch healthcare sector. People find personal health data so sensitive that the brakes have been applied to the use of it. Solutions are being sought to counter this resistance, such as the Personal Health Train. The data remains with the creating organization and the algorithm goes to it, instead of the other way around. This means that healthcare providers and researchers are still able to use it. Steps of this kind are also being taken in other sectors. In total, there are more than 50 similar initiatives in various sectors across the Netherlands.

Using the free market to benefit society

The PSD2 example, demonstrates that regulation can help shape data sharing, but it's not always necessary. Ideally, a company should just focus on profit, while the Government ensures that the company achieves value for society and doesn't destroy anything. If this threatens to go wrong, the Government must intervene and regulate in good time. Right now, governments aren't on top of this. Organisations create a lot of value for society, but they also destroy a lot. The abuse of personal data or non-payment of taxes are just a couple of examples. Governments need to take stronger action against this. The free market is meant to act as a level playing field on which the Government acts very strongly and ensures that everything works to society's advantage.

Currently, regulation remains a bottleneck. Processes are too slow, and governments sometimes let themselves get distracted by companies' lobbying activities. Just look at the fuss about WhatsApp: The company is changing its terms of use so that it can share more data with its parent company Facebook and earn even more from paid content. This is their business model. It is clearly not in the interest of consumers, because as they have no idea what will happen to this data. It's not transparent and the end user cannot control it. At the same time, there are other chat services, such as Signal, that are much more focused on privacy. It's very odd that a Signal user is unable to communicate with a WhatsApp user, even though they use the

same form of encryption protocol. This is something the Government should regulate. Now it's like saying that a customer with a Vodafone subscription can't call a KPN customer.

Open up the backend and compete on quality of service

Telephone companies used to be like this too, but the government put a stop to that in the early 1980s. The backend had to be opened up, so that all customer data would be accessible to other service providers. Today we think that's perfectly logical. We should also start looking at tech companies in the same way, so that they compete on the value they create and the quality of their service. It's currently impossible to compete with Facebook, as it keeps all data to itself. The European Commission is working to create a more level playing field for this. There are laws in the making that should ensure that this kind of malpractice is no longer possible in the European Union. So please be patient.

Cooperation between different industries

Regulation is not the only issue that needs to be addressed in order to achieve new forms of value creation from data and services. In the short term, organizations must be open to collaborating with parties they have no experience with, such as competitors, or parties from other sectors. The problem is that they don't speak the same language and have different organizational cultures. Each sector has its own unwritten rules and ways of doing things, which makes collaboration between different industries difficult. Organizations have what is known as, **absorptive capacity** - the ability to both absorb and implement new knowledge and technology. If the distance between the cooperating parties becomes too great, absorptive capacity diminishes. You then need to find **common ground** and start working towards it. I am currently investigating what steps organizations are taking to bridge that distance. It is striking that old business models clash with new ways of thinking. First you need to break them down - creative destruction - then you need to map out where the control points are within a collaboration. Who has the decision-making power, and control over data flows and finances, for example? Once you have a clear picture of this, you can take the collaboration further as a whole.

Over the longer term, creativity is the biggest bottleneck. Once you have analysed all relevant data, an organisation should have a clear picture of what this could mean to its customers and a clear understanding of what they really need. What will make their lives better, faster, happier, lower cost or more efficient? There is an infinite space to innovate with connecting data from disparate sources, but that space is too big to achieve it. You need to develop creativity to understand where the value lies.

Different views on value

There are many interpretations of what value is. Every organization pursues something slightly different. We think that everyone is only focussed on money, but that's not true. One organization may want to make a lot of profit, another organization may just want to break even. Others are more focused on market share, reputation, or access to technology and knowledge. This is demonstrated, for example, by the cooperation between Dutch organisations and organisations in developing countries. Each party wants something different. One may want to tap into a new market, the other may want access to distribution networks. This shows the difference in perception of value and the reason why people want to cooperate. It is important, however, to make your goal explicit. What does each party want and what are they prepared to commit to? This is sometimes difficult, because not everyone lays their cards on the table or is honest about it. But if you do manage to find out and share it with each other, all parties can move forward together and help each other instead of competing.

Support organizations to understand each other

The challenge lies in showing the involved parties that it is in fact good to be open about this. One method that can help here is '**orchestrating innovation**', developed by TNO. This covers a whole range of techniques used to bring organisations together and make them understand each other. It can be used to develop governance models which shape and support the implementation of a joint innovation process. This is an approach that is currently being rolled out in a variety of sectors.

The role of the Government

The Government plays an important role in innovation. Many important technological innovations, such as the electricity grid, railways, the internet, and new sustainable fuels, are born from large investments - a kind of venture capital - by the government. Public money is used to reduce the risk for companies. The National Growth Fund, which invests enormous amounts of money in things like artificial intelligence and quantum computing, is a good example. A government-driven *technology push* is underway, but the critical question here is whether the government is capable of determining where the greatest social value can be achieved. The alternative would, for example, be to ask a council of academics - a kind of *theory push*. What the Government often fails to do with these kinds of investments is to guarantee a *return on investment* for these large sums of public money. When practical applications are identified, which allow companies to create new revenue models, the Government doesn't normally receive any return for its investment. Better agreements can be made about this. In addition, the Government should focus much more actively on the rules of the game and on drawing up criteria related to social impact. When has our public research money been well spent? What do we want to see in return - in terms of improvements to society - for our investment? The Government should not get involved in how technological innovations are developed.

There are parts of society however, that mainly fall under Government jurisdiction, such as municipalities and provinces. Digitisation plays just as much a role there as in the business world. Governments need to look more closely at the potential value of data for citizens and local businesses and stimulate the formation of local business ecosystems around it. Subsequently, citizens can be more involved. It is important to realize that there isn't one single type of citizen. It's a very diverse group. By using data more effectively, we can help those groups that fall completely outside of the stereotypical cross-section. Think of youth psychiatry or regions with high unemployment and where people have an unhealthy lifestyle. In a government-driven ecosystem, you need to pay attention to the people who find it easy to adopt new innovations, as well as those who find it difficult to understand or use them. This is where the most value can be achieved.





Prof. dr. Marcel Boogers

The quality and accessibility of policy information for local representatives should be improved

#policy information #regional governance



Prof. dr. Marcel Boogers

Professor of Innovation and Regional Governance at the University of Twente and Researcher at Necker van Naem. As a researcher and consultant, he has built up a broad expertise in the field of local and regional governance, local politics, and intergovernmental relations. His primary focus is on the force field between residents, organisations, politicians, and administrators.

The key issues of our time are also challenging for local governments. These are not only challenging in terms of content, but also require new cooperation structures to be established. Themes such as the energy transition, climate adaptation, housing and health care renewal all require a regional approach, despite there being no regional government in the Netherlands. For some reason the provinces are not picking up the gauntlet, therefore municipalities will have to work together to tackle these regional issues.

Decision-making power

The way regional councils currently operate is unsuitable for the issues they have to deal with. The parties at the table have no political mandate to take decisions. The decision-making power lies with individual municipalities or other partner organisations. As a result, the regional table is mainly a forum for the exchange of local interests, with no real regional governance.

Examine issues from a regional perspective

These issues, however, require us to examine what is best for the region as a whole. Local interests are currently weighed up against each other and you

end up with a compromise that everyone can just about agree with. And because each party needs to go back to its own local council to see if there is support for something, it takes an incredibly long time. To avoid endlessly pouring resources into local wish lists, issues should be examined from a regional perspective. Other partners could also be involved in this.

The only way to make a regional administration function properly is to depoliticise issues and transform them into commercial, administrative topics. To do this, administrators must be able to position their issues in their local councils in such a way that there is nothing political about them. There should be no choice - something driven by facts. This is the only thing that currently works to ensure that civil servants are given the space to set to work on a subject.

Information

To make good decisions regarding major social issues, decent information is needed. Parties cooperate better if they have access to the same information at the same time. However, the tools for this have not yet been sufficiently developed. Digitalization could help to provide parties with these tools and thus improve cooperation. For these information systems, a detailed inventory must be made of the data required. The difficulty, however, is that you usually only know this once you have the information in your hands. It is possible, however, to make a rough estimate in advance of the various choices and interests that need to be weighed up against each other. These flows of information must then be integrated into the decision-making process, rather than being spread around.

Make underlying data available to managers

The supply of information, which elected representatives base their decisions on, is pretty poor. A huge amount of information is collected, but it's not accessible. The information usually finds its way to MPs in the form of complicated policy papers written by civil servants. It would be better if they had easy access to the data and could investigate the underlying data themselves. Nice dashboards are, for example, available for this purpose. There are all sorts of systems available for council information or board information, but these only contain reports. You should also be able to access the raw underlying data.

Currently, only financial information is readily available, but this should also be the case for other forms of information on which decisions are based. If you make a decision about care, for example, you need to ensure that data about its quality and accessibility is available. Ensure that figures on the length of waiting lists and the extent to which care is appreciated, are available.

Improving the provision of information should start small and bottom-up. Start in one region and others will then see the value of the information and demand it too. It will sell itself. It mustn't be developed and imposed from above. Start in one place, show what it produces and what you can do with it, and then develop it further. Of course, it takes a lot of resources to build something like this, and even the largest municipalities have limited resources. But local authorities do have strategic knowledge in-house. They can then outsource the operational knowledge to an external party, as long as they are clear about what they want to achieve with those external parties and what you want to ask them.

This type of information provision can also improve citizen involvement. This can be seen, for example, in the measurements of noise pollution around Schiphol Airport. Local residents never really believed the measurements, so it really helped when people were involved, by setting up a meter in their garden and submitting the data. This made the data more reliable, but also more authoritative. The public became participants in the measurements. Of course, you need to be careful that parties who have an interest in the measurements do not manipulate the data.





Prof. dr. Cees van Beers

Focus on users
and only build what
they really need

#overengineering #frugal innovation
#social values



Prof. dr. Cees van Beers

Professor of Innovation Management at Delft University of Technology, Head of the Economics of Technology and Innovations section, and Co-Leader of the Leiden Delft Erasmus (LDE) Centre for Frugal Innovations in Africa. Cees' research focuses on inclusive business models for frugal innovation and their role in achieving economic development in developing countries.

In many Western countries, innovation processes are *over-engineered*. Services, products, and systems are designed to meet a large number of requirements. This leads to all kinds of extra functionalities that are not there because users want them, but because they are commercially interesting. They are then offered as a *package deal*, making products more expensive than they need to be. Users may however already be satisfied with a version that doesn't have all those additions. In the public sector, over-engineering leads to digital solutions that need to work for everyone and under all circumstances. This leads to complex systems and high programming costs.

Frugal innovation can remedy this. Frugal innovation means innovating under extreme resource constraints, such as the very limited access to infrastructural and technical systems in many developing countries. Together, Leiden University, Erasmus University Rotterdam, and TU Delft's Centre for Frugal Innovation is carrying out research into this. The research is focused on developing countries, but what you learn there can also be used in Western countries.

Force minimalistic engineering on yourself

To develop a successful solution under restrictive conditions, the creators of frugal innovations must be extremely focussed on the user and the context in which the tool will be used. Under which circumstances will the tool be used? At what events? Do the users have sufficient knowledge and skills to use it? Such questions force *minimalistic engineering* and a focus on users.

Diversify for different user groups

With frugal innovation, multiple solutions can even emerge, each tailored to the specific needs of a different user group. This does not always have to be digital; a counter with human contact can also be an effective solution for a large group of users. This may sound more expensive than coordinating a single solution, however not over-engineering means that there is more budget left over. As a service provider, this enables you to diversify your offering for different user groups.

Over-engineering is encouraged by the changing way we work. Project teams used to work using the waterfall method, where the focus was on design requirements. Nowadays, a mix of waterfall and agile methods has emerged. The emphasis has also shifted to user stories.

Start by identifying needs

Frugal innovation takes a different approach. It starts bottom-up with the identification of needs and bottlenecks, specifically for disadvantaged parts of society. The approach is anthropological: How can a technology be embedded in a particular culture? Systems can no longer be designed solely based on technology. It is important to look at system development from a social, legal, economic, and ethical perspective. Solutions of the future require a multidisciplinary approach to innovation. How do you do that together with the Government, market, science, and users? There are no ready-made solutions for this as it is a relatively new field of research.

Allow technology to land

There is often a lot of money and attention given to the development of technology, but its implementation is often an afterthought. This is also the case with *general purpose technologies* (GPTs) - large technological developments that emerge in the economy and society and that cause

profound changes without being centrally controlled. The introduction of electricity at the end of the nineteenth century and the rise of the internet at the end of the twentieth century, are good examples. Society's economic structure changed enormously by the availability of electric light when the sun wasn't shining and the connectivity of the Internet. The GPTs of our time are artificial intelligence and quantum computing. The National Growth Fund invests in these. Most of the budget goes towards developing the technology itself, but fortunately a portion is also left over to look at the social, ethical, and legal issues. This is important if the technology is to be properly integrated into society.

Development based on supply impedes innovation

There is an enormous urge to develop technology from a supply side perspective. Often the motivation is that something is done because it can be done and is interesting, and then 'we'll see how it goes'. This stimulates invention but hinders innovation. Terms such as *usability* are heard, but rarely translated into concrete action. With GPTs, as with other solutions, it is important to develop using a multidisciplinary approach. This can be done, for example, by using *value sensitive design*, which includes social values already in the design phase. This isn't easy. For example, an engineer may keep an eye on the cost, but he may be less concerned about privacy. A multidisciplinary approach helps because different stakeholders monitor different values.

Both overengineering and GPTs ultimately revolve around the question: What are you doing it for? What is the most important thing for the user? Consider this and the focus will remain tight. If you follow the lessons of frugal innovation and focus purely on what is most important, you will end up with a product that is simpler, cheaper to produce, has a better place in society and ultimately better meets the user's wishes.



Prof. dr. Nadine Roijakkers

Research the intrinsic motivation of innovation partners and base connections on it

#collaboration #partners #motivation
#facilitation



Prof. dr. Nadine Roijakkers

Professor of Open Innovation at the Open University and Policy Director at the Expertise Centre for Education. Nadine is an expert in the field of collaborative and open innovation. Nadine's research focuses on ecosystems and the role of individuals within collaboration.

Just as innovation is not a goal in itself, neither is collaboration. It must always be driven by a strategic objective. Innovation can contribute to that goal, or it can be something you need to do with partners because you don't have all the competences yourself. If you look at successful innovations, you'll see that the personal click between people in a collaborative relationship is very important. This allows partners to benefit from each other and to support each other if things don't go well. This is visible even in very large collaborations. In the end, it all comes down to personal relationships: Being prepared to do things for each other, give and take, and trusting each other. The Senseo coffee machine is a great example of the importance of personal relationships. This coffee machine was born out of a personal connection between the CEOs of Philips and Douwe Egberts. They met on the golf course, developed a friendship, and wondered if they could work on something together.

Stimulating this kind of innovation as an organization is challenging, as it cannot be planned, and often originates from the bottom up. Management may have the ambition to be innovative or pioneering in a certain sector, but even then, you can't dictate that an innovation needs to be completed in a certain quarter. What you can do is create the right atmosphere within your organisation. This is mainly about giving people confidence and providing the right stimuli and triggers. Offer space to explore and experiment, where mistakes are not immediately punished. It is also important to ensure that

people come into contact with each other, especially people who normally have nothing to do with each other. This helps them to come up with new ideas. This can be done, for example, through hackathons or design thinking trajectories. Innovation may not be something you can plan, but you can facilitate it a lot as an organisation.

Innovation cannot be planned, but you can facilitate it a lot

In Silicon Valley, on the many tech company campuses, there are a lot of good examples of organizations doing this kind of collaborative innovation. But you mustn't underestimate the cultural aspect here. Americans are much more entrepreneurial, take more risks and are allowed to make more mistakes. In the Netherlands, we still have some way to go.

Appoint an orchestrator of innovation

Cooperation is vital if we are to tackle the major social issues of our time, such as sustainability, waste, plastics, mobility, and urbanisation. A number of parties need to be involved in order to tackle these; however, right now various initiatives are running in parallel with few connections made between them. There is no shortage of enthusiasm - just look at the number of new sustainable entrepreneurs starting new initiatives. Unfortunately, these are often in isolation. It is important to put the right management or an orchestrator in place. The Government can act as a facilitator but needs to be more open to learning from and cooperating with private parties who are experts in this. During the COVID-19 crisis, the Government made almost no use of the available knowledge and expertise, which was a real missed opportunity. The Government needs to be open to ideas and initiatives from society and embrace them, instead of the attitude that the Government knows better than society.

The approach of private parties to cooperation is often more mature than public parties. The high-tech sector started collaborating as early as the 1970s. It started with one-off transactions, which primarily brought things together, but as companies grew in this way and gained more experience, they started to see the value of strategic, long-term relationships. In the public sector, however this level of maturity has not commonly developed. There is more distrust, 'What can you offer me and what do I get out of it?', which isn't a great basis for tackling a major issue together.

Leadership

Cooperation can be stimulated by good leadership. With small and medium sized enterprises in particular, you'll find entrepreneurs who radiate positive feelings about cooperation. They want to work together because they can't do everything alone, and they take their employees with them. People need to see the value of working together, especially from the higher levels of the organization, and have basic trust in others. Junior managers and leaders are often too eager to lean towards the managing and controlling side. They have limited experience themselves and therefore want to know in detail what people are doing or not doing. As they gain more experience, they dare to give people more space and trust them to use their own initiative.

One of my PhD students is working on an instrument that can be used to measure and monitor the health of an innovation ecosystem. A dashboard will show the state of an ecosystem and the relationships between them, which would, for example enable campus managers to offer insight to stakeholders or management. It would highlight which important aspects could still be improved, and if this can be linked to specific actions, it could add significant value. With nothing of this sort currently available, parties such as Chemelot and Philips have shown an interest.

Personal drive and motivation are vital

The relationship glue, that helps form and hold a community together, is ultimately the biggest challenge. As an orchestrator, you need to discover what exactly drives people within an eco-system. If you can make the connection between people on that level, you have already made good progress. On the Chemelot campus, for example, the right parties are present, and it is beautifully designed in terms of process and structure. Connecting scientists, researchers, and entrepreneurs, however, to ensure that the formation of a community continues, is extremely challenging. It transpires that scientists at Chemelot are driven by their ideal of wanting to improve the world. This is what drives them on a personal level. As leader, you then need to bring the parties together on this theme and keep them connected. That's when personal drive really comes to the fore, particularly with smaller entrepreneurs and companies, where you see a very clear line between the personality of the people and the drive of the organisation.

This is often less the case in large organisations, because there is more noise on communication lines. Ultimately, personal drive and motivation is vital.

The importance of drive can also be seen in civic participation. One of my master's students has carried out research into Rotterdam and The Hague's idea platforms. The research examined the intrinsic and extrinsic motivation of citizens who participate on such a platform. Consider, for example, the amount of likes someone gives, how often people log in, how many comments someone posts and the quality and feasibility of the plan. With extrinsic motivation, you could for example, pay citizens with a book token, but you will get much more out of citizens who are intrinsically involved with what's happening in their community. People who really want to be involved and be taken seriously. Citizens must be given the idea that they truly have something to contribute and that action will be taken based on their input.

A different approach to funding science

Scientists can help improve these kinds of innovation processes and ecosystems. But the current funding model is not set up to encourage behaviours that accelerate major transitions. It's creating scientists who only focus on their scientific output and impact scores, as this ultimately drives their careers. If we want more engaged scientists who want to contribute to society or have a greater drive for education, we need to change this. This is happening more and more. The Dutch Universities Association's (VSNU) 'Recognise and appreciate' programme does just this. Universities are, however, often afraid that their scientists will no longer be successful in the international market. This is a chicken and egg discussion. It would be a step in the right direction if science were funded differently and if universities were to value commitment differently. Professors can contribute to this by passing on different norms and values to the people they work with.

Science can also have greater impact through *design thinking*. It makes it much easier to get scientists into a 'do-mode' and speed things up. Within the academic world, this really is an eye opener. Scientists often have the tendency to talk and think for a very long time, while it is often just a matter of putting it down on paper and prototyping or testing it. Design thinking helps with that. In a single morning session, you can achieve a number of strong concepts to work on.

An innovative approach to major social issues requires cooperation. The Government must ensure that these collaborations get off the ground, by

identifying each partner's intrinsic motivation. Take these motives seriously and establish connections based on them. This will create the necessary energy to solve the major issues of our time.





Prof dr. ir. Nitesh Bharosa

GovTech: Trojan horse or a blessing in disguise?

#GovTech #quadruple helix
#digital transformation



Prof dr. ir. Nitesh Bharosa

Nitesh is a professor of GovTech at Delft University of Technology and conducts research on the design and governance of responsible GovTech solutions. He is also the Academic Director responsible for research collaborations at Digicampus.

Who will design and deliver the public services of the future? Not long ago, the answer was simple: The Government. But when it comes to digitisation, public organisations are struggling. Back-offices run on outdated technical systems and there is a lack of innovation capacity. And in some cases, the human touch in digital systems is hard to find.

The rise of GovTech marks the beginning of a shift, with market parties increasingly acting as service providers between the Government and its citizens. For example, they help you to obtain a high-quality digital identity, open a data wallet and manage and use your data in all kinds of transactions. This is all based on the latest technologies and offers all kinds of opportunities to transform the public sector and make public services more user-friendly. Is GovTech *a blessing in disguise* for public organizations struggling with digital innovation, or is the Government bringing in a *Trojan horse* that it will become dependent on? What about privacy, what else happens to your data? It's estimated that there are more than 400 GovTech start-ups in the Netherlands. The business models behind GovTech solutions are unclear, the underlying technologies are not neutral and it's not clear what public values are built into the architecture.

How will we responsibly design and govern GovTech? This is the central question for me as a professor of GovTech. To answer this question, we need to start with the question, 'What is GovTech?' GovTech *refers to socio-technical, market-based solutions for facilitating actions in the public sector*. There are several actions that provide the basis for categorizing GovTech solutions. In practice, there are three categories of GovTech solutions.

Three categories of GovTech

The first category is the application of new information technologies in public services for residents and businesses. We are talking about new technologies such as AI, trust services, data-wallets or blockchain applications. A combination of these technologies is often used in a single GovTech solution. Think, for example, of the use of data-wallets and algorithms when applying for a subsidy or rental property. As a GovTech supplier, market players fulfil an intermediary role, linking people and public services. This is a new development, as you currently still have direct contact with an authority, such as the Tax Office or DUO web portals, or the Social Insurance Bank (SVB) or municipality front desks. In the near future, you will open a data wallet held by one government technology provider and then identify yourself using an identifier provided by another government technology provider that provides trust services. Next, you access a government's app or portal or an app from a marketplace provider that provides a specific service. Ideally, this should be a *seamless experience* with *instant gratification* - you get results immediately. This was very different at a government agency desk - you could only visit during office hours, had to bring your identification and details, needed to wait and sometimes you were subsequently referred to another agency.

The second category of GovTech solutions deals with the application of information technologies for data-driven working. The term 'working' includes both policy development and implementation. Take, for example, Digital Twins and tools for risk analysis and policy simulation used by policy officers in the policy cycle. A good example is the use of a GovTech solution for mapping waste streams at local and regional level and predicting what the effects of certain policy measures would be. This category also includes AI-driven tools that officials use to organize workflow. To a large extent, this involves the use of aggregated, non-personal data.

The third category is the use of information technologies for monitoring and enforcement tasks. Examples include the use of drones to monitor the quality of dikes or AI to predict maintenance work on roads and buildings. Another example here is the application of performance dashboards for the digital surveillance of companies. This category is sometimes called RegTech.

The use of GovTech is not limited to the public sector

For now, my research focuses mainly on the first category. It is very exciting because of the rapid rise of GovTech in public services. The application of new technology in public services involves a complex playing field, which includes discussions about public values and market forces. After all, GovTech solutions in this category, such as data wallets, are not limited to use in the public sector. You could also use the data in the wallets when buying a house or making a financial overview. Parties such as mortgage lenders and insurance companies are happy to receive verified data to deliver customized services and products. Data that you collect from government sources (such as the Municipal Personal Records Database and Register of Income) via your wallet and share with commercial service providers has a high degree of reliability. This is good for commercial service providers because it means they need to perform fewer checks and are in compliance with GDPR.

GovTech can give people sovereignty

GovTech can help give people more control over data and identity. It is a tool for sovereignty. This is an important issue for Europe, both for its inhabitants and for the European market as a whole. Europe does not want to be too dependent on big tech companies. Sovereignty is an innovation issue that is strongly institutionalised in legislation, such as GDPR rights or what people should be able to do in eIDAS to give permission for data. This legislation is very complex, because it has never been done before. Human rights have been put on a rock-solid footing and we are now seeing the impact this has on how the underlying technology must be developed and applied together. If you were to follow the European model all the way through, you would end up in a situation where no personal data of a resident could be held by the Government unless explicit permission was given or a legal framework was in place. Through new legislation, such as the Digital Services Act (DSA) and the Digital Single Market (DSM), Europe also wants to create a new market for socio-technical solutions that offer an alternative to the American market. Where one company or one system is dominant, Europe wants to move towards a distributed decentralized ecosystem of various parties in which providers of the same services and products compete with each other.

Transforming power

The transformative potential of GovTech solutions is huge. The Government will no longer need to develop and manage all new technical solutions itself but can lean on the innovative power of the market. What's more, the Government may eventually look differently at its IT portfolio. If there are sufficient high-quality GovTech solutions, the government could say goodbye to existing (legacy) systems and services. At the same time, this is very exciting. With GovTech, we're not only shaping the digital government, but also the digital society, which means there's a lot at stake. Who decides what? What are the possible consequences and how can we mitigate them now?

Changes are needed to exploit the potential of GovTech. These include existing systems, rules, work processes, new types of (customer) interactions, the need for new knowledge, skills and associated organisational culture, and coordination between different governments, users, and service providers. Launching a solution is just the start. Coordination is then needed for management and further development. This will require new forms of joint management and decision making, with the responsibilities for safeguarding public values playing a central role. In short, we need GovTech governance.

New design approaches for the public sector

The rise of GovTech requires a different way of designing and developing solutions for the public sector. Until now, many systems were developed in the double helix, whereby the Government (customer) published a tender for a market party to develop a solution (supplier). The resident (user) was often only involved in the test or pilot phase. Functional requirements (such as the user being able to log in) and quality requirements (such as availability and security) were central. Public values such as transparency, sovereignty and privacy were not explicitly included in the schedule of requirements, as this remains difficult. Surely you wouldn't let a software developer think about autonomy and the potential unintended consequences of the solution when used by humans?

*Moving from double helix to quadruple helix
to develop widely supported GovTech solutions*

The double helix is no longer sufficient as it doesn't allow public values to be adequately considered. We can't develop supported GovTech solutions if we don't involve people in the design and testing. Moreover, knowledge institutions are missing from the double helix, despite them being valuable independent experts who can contribute knowledge from all over the world. Combine these factors together and you get the quadruple helix approach to innovation. This means that the perspectives of government, market, science, and society must be actively involved in innovating and shaping the public services of the future. Involving people who are affected by GovTech gives legitimacy to the production process.

This is a fundamentally different approach, based on open innovation rather than closed innovation. Digicampus uses this quadruple helix approach. People realise how far-reaching technology is for the whole of society. It has a major impact on people's lives, which means you need to involve them in the development process. This not only has a technological side, but also a legal and moral one. These different aspects quickly make the process complex, which means that it's impossible to solve with two parties, but instead you need to bring together the different expertise of several parties. Moreover, a new legitimacy process must be passed. Under what conditions do we want to allow GovTech solutions? If there is no call for tenders, what will give GovTech legitimacy? The structures for this are currently lacking. A more open way of innovating and working can help, taking into account the different stakeholders and their perspectives, concerns, and needs.

The contribution of scientific knowledge and methods is essential

Science contributes knowledge to the design and development of GovTech, secures this knowledge and shares it through education. It is important that knowledge is transdisciplinary - meaning that different disciplines come together, such as information technology, ethics, law, public administration, sociology, and economics. Researchers from different disciplines then need to work together in an integrated way to arrive at solutions. After all, GovTech raises difficult questions that cannot be answered by a single discipline. What, for example, is responsible GovTech? What requirements must it meet? How can we determine this beforehand and monitor it afterwards? When can reliable government data be used and when can't it be used? Which business models for GovTech are fair? How do you assess that and how do you monitor it? These are innovation issues that touch on several disciplines.

*Digicampus is a living lab for the
joint development of GovTech solutions*

Is GovTech a Trojan horse or a blessing in disguise? That depends on how we embrace GovTech. The Government can no longer ignore GovTech. Various solutions are already being used on a small scale. If the Government allows GovTech to develop, it risks closed systems, vendor lock-in and irresponsible solutions from a public values perspective, followed by GovTech scandals and a regulatory reflex to correct things. This would be a shame. On the other hand, as a government you can make the strategic choice to be involved in the design and testing of GovTech solutions. This will allow you to steer the functional requirements and public values that these solutions must meet, establish open standards, and lay down responsibilities in advance, for example in systems of agreements.

At Digicampus we are building up experience, knowledge, and methods for jointly developing responsible GovTech solutions. A *living lab* is important if you want to develop technology together and avoid everyone reinventing the wheel. A living lab is more than just a meeting place, it's an innovation ecosystem that parties can get in and out of. There is a significant knowledge component to this, particularly as much is new. This is the reason why Digicampus has created a chair for GovTech and created space for research at various levels, from HBO/BSc research to MSc and PhD research. This form of knowledge development is essential to the mission-driven innovation that Digicampus stands for.



Book list

Leading Public Sector Innovation
Christian Bason

Ministerie van Verbeelding (Dutch)
Jet Bussemaker

How to Survive the Organizational Revolution
Ard-Pieter de Man

The Value of Everything
Mariana Mazzucato

Entrepreneurial State
Mariana Mazzucato

Political Emotions
Martha Nussbaum

Innovating Beyond Boundaries
Danja von Salisch & Giulietta Marani

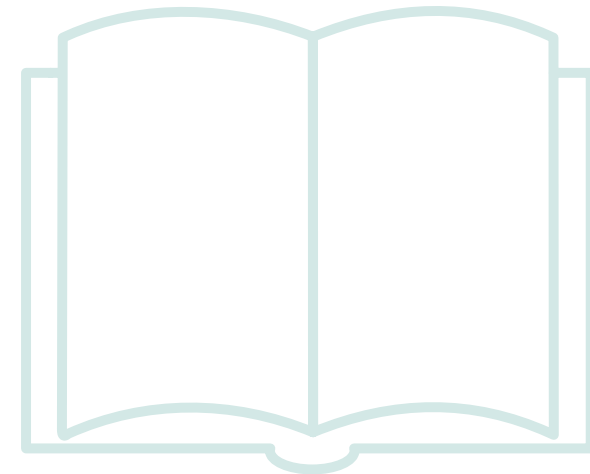
Van indammen naar laten stromen (Dutch)
Menno Spaan

*Jugaad Innovation: Think Frugal, Be Flexible,
Generate Breakthrough Growth*
Navi Radjou

*The Transparent Society: Will Technology Force Us To Choose
Between Privacy And Freedom?*
David Brin

*Challenging the Chain: Governing the Automated Exchange and
Processing of Business Information*
Nitesh Bharosa, Remco van Wijk, Niels de Winne & Marijn Janssen

Een verkenning naar innovatie bij de overheid (Dutch)
Giulietta Marani & Ilse Vegter



Useful theories, methods and approaches for innovation

Do you want to use methods for collaborative innovation?

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OPEN/COLLABORATIVE INNOVATION PROCESSES

Essence: involving different expertises and organisations leads to higher quality innovations

- **Open innovation** - Chesbrough, H. (2003). Open Innovation: The New Imperative for Creating and Profiting from Technology. Harvard Business School Press, Boston.
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ACCEPTANCE OF INNOVATION

Essence: by focusing on the value systems offer their users the chances for acceptance can be raised

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GOVERNANCE

Essence: effective innovation demands a fit between decision-making structures, resources and the to be developed (technical) solutions.

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- **Responsible Innovation** - Owen, R., Bessant, J. & Heintz, M. (2013). Responsible Innovation: Managing the Responsible Emergence of Science and Innovation in Society. Wiley.

