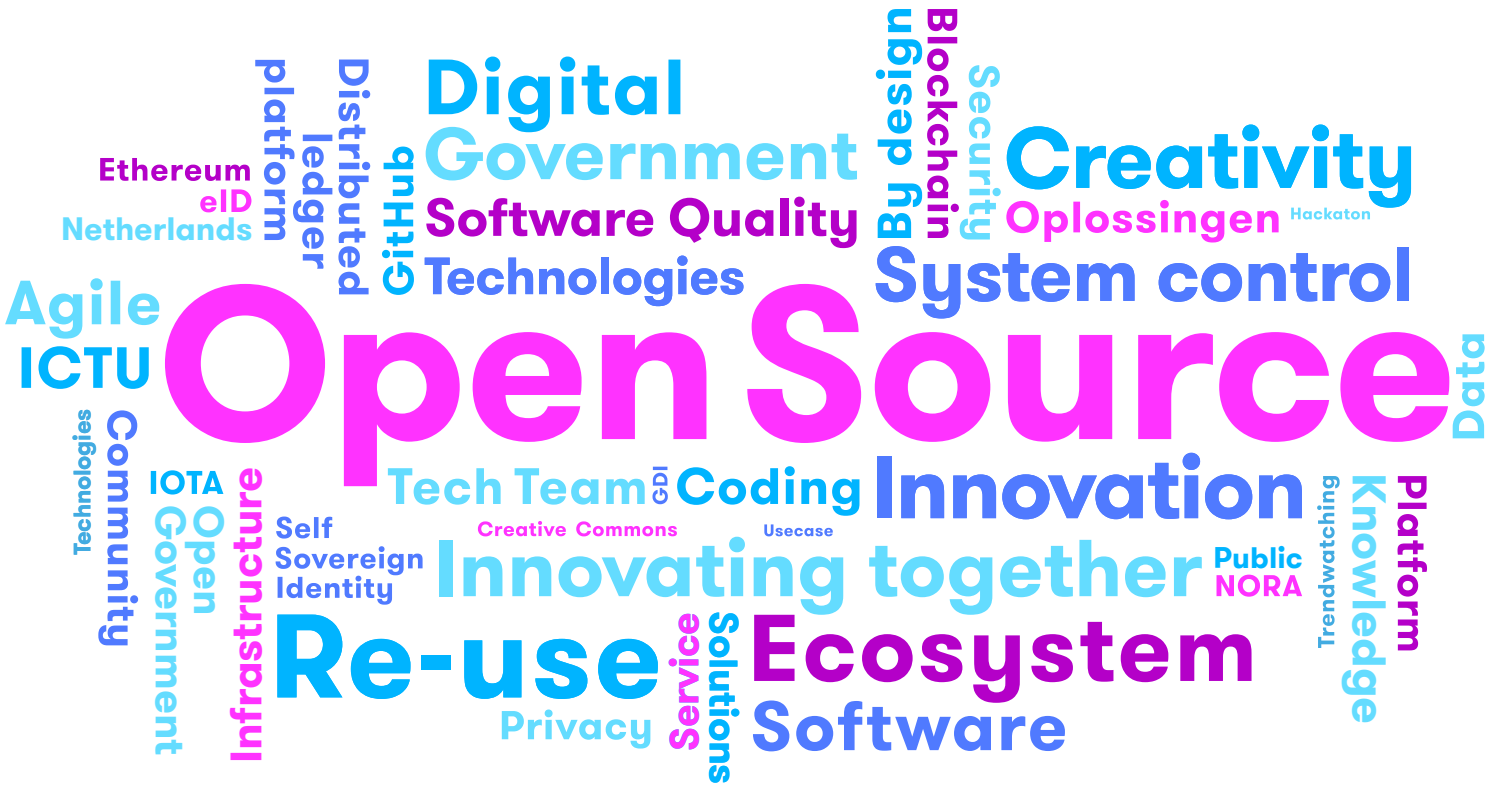

Whitepaper

Open-source ecosystem

Innovating together for public services

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Blockchain, big data, Internet of Things, robotics, virtual reality. The world is changing fast. In April 2017, ICTU launched the DIStributed Collaborative Information Platform (Discipl). This is a platform based on collaboration, sharing and re-use of information.
Now, the time has come to take the next step: creating an open-source ecosystem around the Disciple platform. In various locations, government organisations are striving to acquire knowledge and experience with the service provision and business operation of the future. The open-source ecosystem can help governments innovate cross-governmentally, as one government, using a learn-do-share environment and a network of collective intelligence.
For a fully-fledged open-source ecosystem to be established, a number of starting points is crucial. They concern system control, Agile, re-use and social scalability. This whitepaper sets out to explain these starting points, the workings of the open-source ecosystem, and what it can mean to government services.

Contents

Every now and again you just sit on your sofa at home in the evening. Daydreaming for a spell, after another day's hard work for the government. Puzzling over service provision. Adequately following up requests, questions and complaints put in by citizens and businesses. Knowing what to do, but still often being remiss. However much you want to do things differently.
As if this needing and being able to do things differently has not been described more than enough in books, reports, blogs and so on. Then, why does that high-quality service provision still seem so far off?

That kind of daydreaming. About issuing a noise exemption permit, for instance.

How does that work nowadays? A party planner is denied an exemption because elderly people in need of long-term care are living in the vicinity of the intended location (the result of a long search) and they are likely to suffer from the noise level. The need of the party planner and the community he works for is to have a party in a fun location. The need of the local residents is interpreted automatically: no noise nuisance. Laws and regulations are clearly aimed at preventing noise nuisance, but the organiser is worried that this way, there will be no (fun) locations left where a party can be hosted and feels that it takes too long to find another location that is suitable.

Spontaneously, another image occurs in your daydream: a noise exemption app knows citizens' preferences regarding noise (anyone can enter his or her preferences, and otherwise a standard value applies), knows the potentially desirable locations and appoints those locations (automatically granting noise exemption).
Local residents can be consulted through an app: "A desire has been expressed to organise an event in your vicinity. Please indicate your needs regarding this intention." It is possible that all the needs automatically generate solutions that the app can then present to everybody concerned. Even if those solutions are not preferable for everybody.

An attractive image thus presents itself. Isn't that wonderful, setting up and fitting out service provision that puts individual needs first by design. Hold on to that image, the desire. And then again, how about a coffee? Tomorrow is another day.

The voyage of discovery so far

April 2016. The Dutch-language article about what a civil servant should understand about blockchain is the start of our voyage of discovery. In September 2016, we follow up by exploring blockchain for the government. in a well-wrought paper. Distributed technologies (such as blockchain) are the catalysts forcing governments to view the world from different perspectives. To use different paradigms. Paradigms that challenge governments to reconsider all known and trusted (legal) frameworks, institutes and interests pertaining to the system world that has been created. Back to the drawing-board. Back to the government's intention and its fundamental principles for the rule of law.

To that end, we introduce Discipl, technology for a future society.

To summarise, Discipl:

1. is a platform for automated information services for and by society;
2. enables explorations of a new socioeconomic environment by means of innovative business models that support various forms of collaboration;
3. works towards a new generic digital infrastructure (GDI) that is future-ready and in which real-time information is processed, shared and stored through a virtual source;
4. assures privacy and security by design, while providing a basis for the far-reaching ethical issues that are looming near slowly but surely;

Discipl is a concept that is also gaining a foothold within the Dutch Government Reference Architecture (NORA). It is, then, an innovation that clearly fits the third horizon. Technological development progresses fast, and many new concepts and techniques happen in rapid succession. In spite of that, the first ideas, techniques and basic building blocks are solid: the framework will use a distributed ledger platform and be able to work with multiple technologies. For instance, IOTA, Scuttlebot, Ethereum and Bitcoin. Moreover, Discipl will constitute a basis for a Self-Sovereign Identity solution. This a sort of distributed eID, where existing solutions (such as uPort, Sovrin or a solution developed by Techruption) may possibly put the concept of personal data sources into practice. Thus, the distributed information platform we aim to create will arise.

Towards an innovation ecosystem

Disruption, especially in bureaucratic institutions is rare. Decades later, even the Internet hasn't drastically changed how governments operate and rarely do they compete in personalized citizen services.

— Charles Pauka

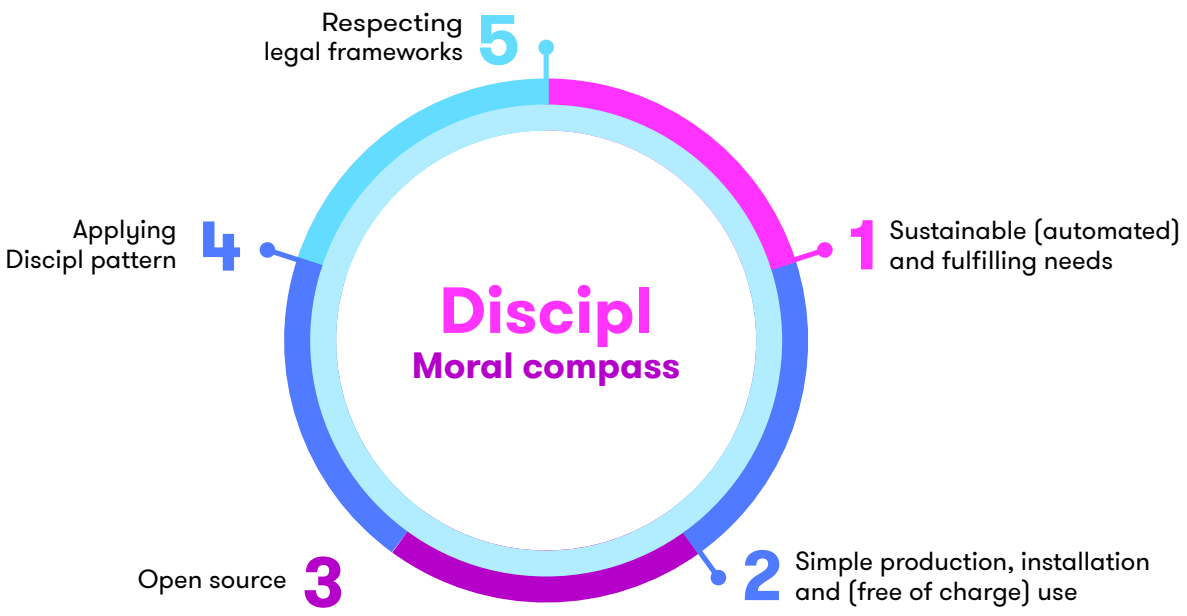
This is a recent quote from a blog in which the Australian government reflects om its public services in relation to the development of new technologies. Closer to home, the weblogs of the cross-grained thinker Bas Eenhoorn and many of his colleagues – both within and outside government – frequently fuels the search for change in order to attain high-quality service provision.

Government service delivery agencies that can't "answer the friggin' phones" should not be spending time and money exploring exciting new areas like big data analytics, artificial intelligence and gamification.

– Paul Shetler

On the other hand, it must be observed that it is not much use for a government to invest a lot of time and money in reportedly disruptive innovation including various new technologies. Innovating while the basis is not up to par is like aspiring to be in the Olympic swimming pool without at least swimming certificates 1 and 2. Something Seger de Laaf expressed in no uncertain terms in his Dutch-language blog 'Total blockchain fatigue'.

At government level, we are persistently caught in this dilemma of ponderous change versus wasted money and energy. For obvious reasons, experimenting with government services is not always a self-evidently good idea. This paper is an attempt to escape this dilemma.
Together.



We aim to create an open-source ecosystem around the Discipl platform, an informal network, pivoting on solutions that are already available, or that can be adjusted to be re-used in other contexts.
First and foremost, we see contributing to and participating in the Discipl open-source ecosystem as steering on the same moral compass:

1 We create sustainable, highly automated solutions that fulfil people's needs;
2 Solutions can be produced and installed relatively simply for (free of charge) use;
3 Solutions are open source, having a Creative Commons licence or a GPL version 3.0[1];
4 Solutions apply the Discipl Pattern;
5 We respect the current legal frameworks.

Fortunately, we are already seeing that things are in progress in this field. In the appendices to this whitepaper, you can find open-source solutions and foundations within and working for the Dutch government. We want to go one step further. We aim to create a platform where all this expertise, this network, the government's needs and the existing software code come together. Where joint knowledge accumulation take place on innovation within the government without regard to persons, interests or origins. Where new solutions are being openly shared and re-use is the norm.

1 In Appendix 3, you can read more about open-source licences.

Open government

We want to elaborate on the action plan Open Government of the Dutch Open Government Learning and Expertise Centre, an ICTU project. At the time of writing, a sequel to the action plan (2018 – 2020) is being developed, and we would like to add to it the topic of 'Radically transparent innovation'.

But, erm, open government is automatically transparent as well. Isn't it?

Paul Frissen, dean and CEO of the Netherlands School of Public Administration, and Professor of Public Administration at Tilburg University, put it concisely: "The peculiar thing is that the government is placed in a central role where transparency is concerned. The government is to supply information, the government has to do this, the government has to do that..."

Frissen's proposition is that the government needs to fragment that central power more and needs to crumble more. Unprecedentedly, the fertile medium of digital transformation, together with its initiating technologies, appears to allow for this. We are aiming for an open government, to be shaped more emphatically by you and me.

The open government concerned also means taking care of decent digital fundamental rights. That is another area where the government needs to be radically transparent. There was a good reason why the Rathenau Instituut recently advocated a new European treaty dedicated to two novel human rights. The first is the right not to be measured, analysed or coached. The second is the right to meaningful human contact. .

What does the eco-system look like?

As early as in 2015, the Dutch consultancy KplusV wrote about how to chart an innovation ecosystem, how to come to grips with it and what this entails. It pivots on diversity and complementarity in the knowledge, skills and contributions relevant to the (sub) goals. For MIT SMR (Massachusetts Institute of Technology Sloan Management Review) the answer lies hidden in what they call adaptive space, the networking and organisational context by which people, ideas, information and resources can move across the organisation and promote successful innovation. Maurits Kreijveld aptly expresses what characterises digitisation, namely that all the various sectors and domains are subjected to the same universal digital principles. That is why he advocates the government as a platform with three building blocks: data, infrastructure and community.

At various locations, government organisations are striving to acquire knowledge about and experience with the service provision and business operations of the future. In the open-source ecosystem, ICTU aims to help governments to innovate cross-governmentally, as one government, using a learn-do-share environment and a network of collective intelligence, where government organisations can:

- Jointly explore the new impactful developments and qualifying technologies;
- Acquire (multisector) knowledge;
- Prototype in tandem;
- Use other people's knowledge, prototype or learning experience

Convergent facilitation

Organisations, communities, community groups, political parties or whichever entities we come up with, where people meet (such as the open-source ecosystem we are presenting here); there is a universal need for collaboration that is both humane and effective. In this brief video een toelichting wat convergent facilitation is.

The ecosystem decides what will be explored and invests by means of people, funds and/or tools. ICTU provides a (legally) safe experimenting environment and links to the market place and knowledge institutions where connections are still lacking. The ecosystem jointly develops novel methods and techniques (Proof of Concept, knowledge products, trainings, et cetera) for the government.

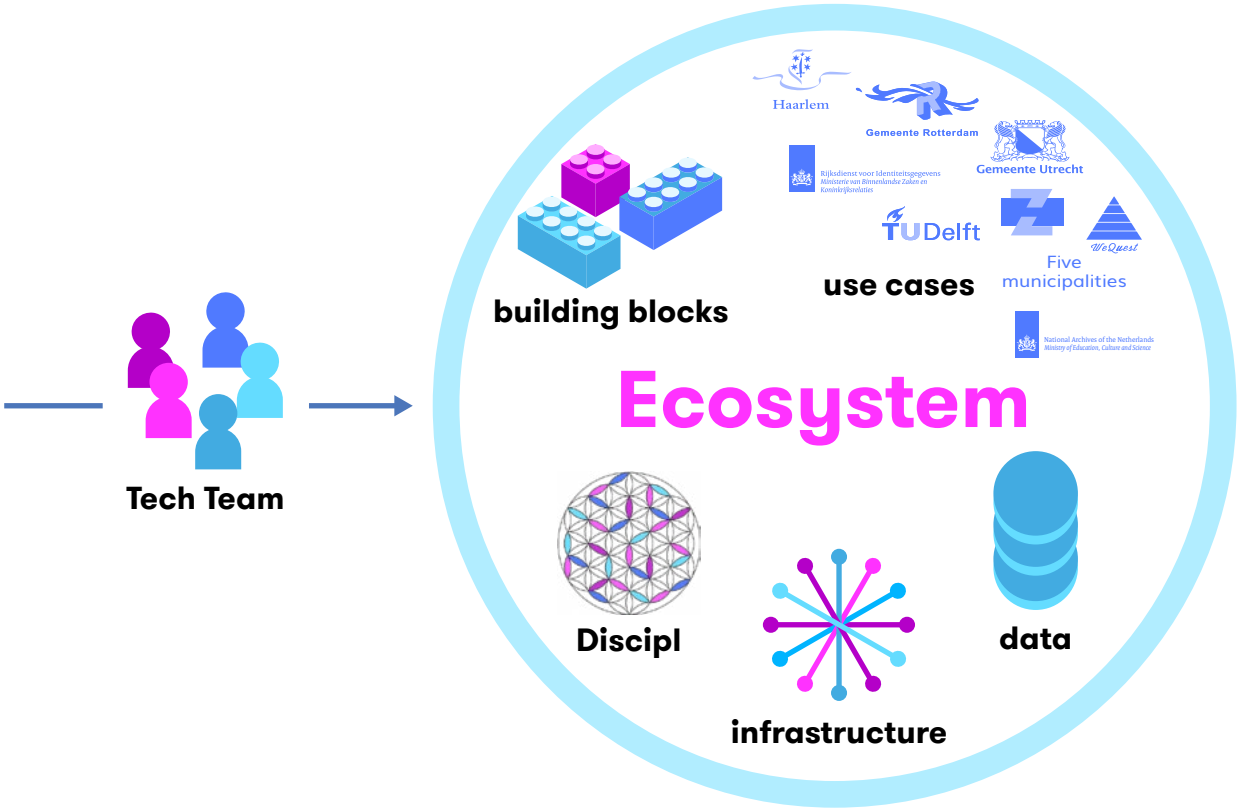
Governments may explore the following topics:

- Novel ideas to solve a problem;
- Application of impactful new technology (use case);
- Building block of the new government (for instance, identity framework);
- Ecosystem promoting application of technology or building block.

The administrative experiences with the various blockchain pilots blockchainpilots initiated by Marloes Pomp and Koen Hartog led to the idea to rig up an administrative Tech Team. The team consists of senior civil servants and – wherever needed – external experts, and, for one thing, helps provide the Council for Public Administration with answers regarding a fundamental reorientation of political culture.

The ecosystem ensures the knowhow to safeguard the quality of experiments and solutions and to focus on re-use (and even to decide on which solution could be the government standard).

The administrative Tech Team filters, prioritises, takes final responsibility, and it safeguards the requisite accuracy in public services and the legitimacy of changes.



Examples

The following –alphabetically ordered – examples illustrate the intended open-source ecosystem. This survey is not exhaustive.

Municipality of Haarlem

One of the Discipl sub-functions is making claims in relation to oneself (I am, I want, I find, et cetera), registering proofs for claims, a claim itself, verifying such claims in the day-to-day use and sharing these claims with others. The Haarlem Securities project ('Waardepapieren') focuses on digital attestation and verification of existing registrations, such as those in the Personal Records database (BRP). Thus, the issue and use of copies of certificates can be digitised and be processed more efficiently.

Municipality of Rotterdam

On the subject of tourist tax, the municipality of Rotterdam is conducting a pilot using blockchain technology. The purpose of this experiment is acquiring experience with blockchain in a municipal context (is this usable, and if so, in which field?), minimising the administrative burden (both for citizens/businesses and for the municipality) and assessing whether the approach increases the willingness to report.

Municipality of Utrecht

Utrecht residents who are struggling to make ends meet, mainly clash with 'public administration'. They receive income from various channels and at different times (social benefit, pension, care allowance, child allowance, municipal allowances, state pension, et cetera). The allowances tend to be related to their income, rent and care expenses and between whiles, they need to be adjusted to the continuously fluctuating situation and/or life events (moving house, divorce, children, et cetera). These residents tend to be less well able to respond alertly to these types of adjustments, as a result of which recoveries of payments made frequently occur. Moreover, applications have a lead time, as they need to be checked and assessed by the authorities. In the end, the residents cannot work it out', which results in even bigger financial problems. The pilot assessed whether the blockchain can provide residents with an innovative solution, serving as a 'housekeeping book'.

Municipality of Zuidhorn

By using blockchain technology, the municipality of Zuidhorn intends to render data more reliable, safer and more accessible. In order to make optimum use of blockchain, they start small-scale and specific by clarifying data in the child package allowance process. The child package allowance is a municipal support scheme for poor families. The municipality is also exploring the possibilities of scaling up and extending this approach to other schemes.

National Archives of the Netherlands

Commissioned by and in collaboration with the National Archives of the Netherlands, ICTU is conducting the 'eDiscovery for information management' study. This study involves the search for new insights that may contribute to improving and putting in order the digital information management with the Dutch government. The experiments aim to acquire and extend knowledge about the deployment of self-learning systems. How can these systems be used for information management and more specifically for rating and selecting information and rendering it accessible?

National Office for Identity Data

The National Office for Identity Data (RvIG) is exploring Reliable Ease ('Betrouwbaar Gemak'). This is the name for the new service that is to be developed, a service for your and my (digital) identity in the Blockchain era. Its starting point is the international interest in r The Path to Self Sovereign Identity that Christopher Allen started. Public-private parties taking part in, among other things, the Dutch Blockchain Coalition and the Brightlands Techruption, are by now working hard at this.

Delft University of Technology

The Delft University of Technology is working on 'TrustChain: A Sybil-resistant scalable blockchain'. Thanks to its scientific knowledge about the technology and its practical, implementation-oriented 'working code' attitude, it is an indispensable link in the landscape.

Five municipalities

Five municipalities (Lingewaard, Emmen, Almelo, Hollands Kroon and Molenwaard) are having an app developed, designed to digitally collect points of view among their local residents. The 'Voiceapp' ('Stemapp') makes it easier for residents to voice their ideas about, among other things, local affairs. This way, it is easier to measure, for example, support for propositions.

WeQuest

WeQuest is a dApp (decentralised application), which has been designed to connect the sharing economy peer-to-peer in a single but decentralised Universal Sharing Network. By means of a relatively simple user interface, which is directly accessible through a mobile phone or another web-enabled device, WeQuest location and time independently takes stock of the needs and publishes them in a globally accessible ledger (blockchain).

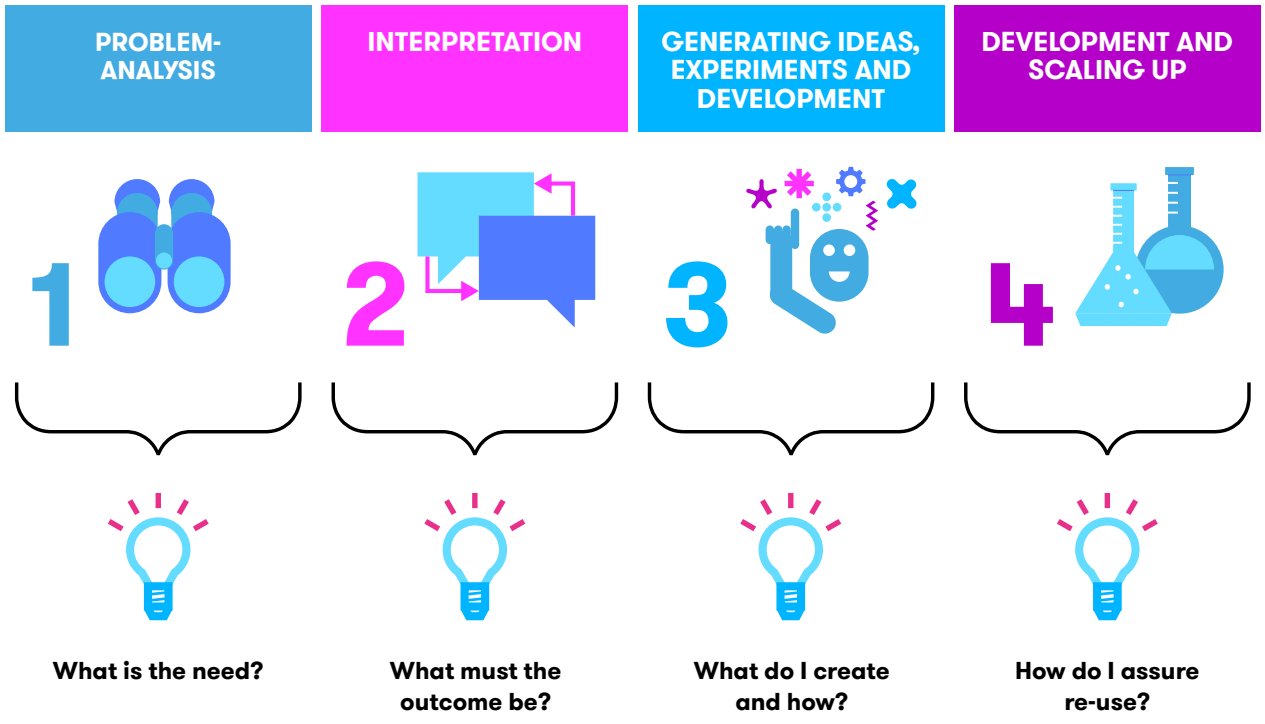
How can we innovate together?

Problem analysis

Blockchain, big data, Internet of Things, robotics, virtual reality. only a handful among the 'new' developments that gain or have an effect on the government's day-to-day work. Which trend do we discern? What are the latest applications? What is the potential impact? Do we actually want these developments?

What will be the government's role? Together with various governments, we examine the trends, initial ideas for applications and their consequences, and consider which of these we want to explore as an ecosystem. Likewise, we jointly select in which trends we want to gain multi-sectoral knowledge. This selection we then put to the administrative Tech Team.

Innovating together follows steps below, based on design thinking.



Interpretation

In the beginning of September 2017, the Maak Het Bruikbaar Festival (which translates as 'make it usable) organised by Gebruiker Centraal was in full swing. The event featured dozens of workshops, presentations and demonstrations.
Gebruiker Centraal is a community for professionals working in online government services. Together, they want to improve the level of online government services, so that more citizens are able and willing to make use of digital services. In this community they exchange experiences, lessons learned, tips and tricks. Gebruiker Centraal has created a viable community that by now makes an indispensable contribution to the continuous improvement of public services.

The Make it happen! report makes clear that new technologies can be potentially meaningful, but that they take a shift in thinking and acting. Another reason why new technologies need to be developed lies in the fact that, while the government has taken steps into digital transformation, the service provision processes are still organised from the perspective and in the interests of chain partners. This approach benefits the government far more than the citizens, who largely have to make do with digital forms and a top task focused (Municipal) website.

The time has come to essentially start from citizens' social context, thus enhancing the information position, securing the privacy assurances and legal protection, enabling a more tailor-made approach and ultimately providing better (digital) support.

Generating ideas, experimenting and developing

There are several ways to explore a new technological trend, application or building block. One way to support this in the open-source ecosystem is by way of hackathons. A hackathon is an event where programmers, designers and experts work together on innovative and creative solutions to an (educational or social) issue. Hackathons are a quick way to share knowledge and gain experience. The hackathon produces first demos or rough sketches that can subsequently be shaped further in the ecosystem.

Giving further shape to and actually realising the solutions and looking for the right developers manifests itself in the ecosystem. Apart from the hackathons, we organise regular gatherings where developers and government organisations meet.
Following the excellent example of the 18F Micro-purchase it might be possible for participants to these gatherings to put their names down for public services issues presented by government organisations and/or other stakeholders. In short, it would be a place to pitch questions and problems. A central spot within the Netherlands with a view to all solutions that are already available?

In our mind's eye, we see the following: a bimonthly gathering (working title: 'innovating together'), for and by developers. On a fixed day in every odd month the doors of a regular haunt should be open to all sorts and conditions of developers and interested parties. Thus, the group of participants together form a community of expertise, networking, contact, and particularly a meeting point of

sincere passion for the public cause. Mutual social control ensures individual credibility, responsibility and interpersonal accuracy. Participants help each other to be able to communicate, collaborate and collectively build solutions.

All necessary code is freely available in repositories in its own GitHub, in in the Discipl GitHub. The latter is possibly the beginning of what could become https://code.gov/#/ for the Netherlands. Thus, we realise a model in which software – including maintenance – van thrive.

Further development and scaling up

Scaling up an application starts with performing a feasibility test and a technical analysis. Can the solutions be implemented in practice and are they worth (more) broadly based investments? The open-source ecosystem provides the knowhow for this test and analysis analyse. ICTU has developed various implementation reviews and impact analyses what can be used. The Tech Team acquaints itself with the results and focuses on the requisite follow-up.

We share all acquired knowledge and experience with the ecosystem, for instance through knowledge meetings and masterclasses. Intervision per stage is also possible. Thus, we focus on learning and continuous improvement along with and for the benefit of the ecosystem.

The ecosystem does not have one single owner. It must however be kept together. That is why it is important to continuously make new connections between the parts.

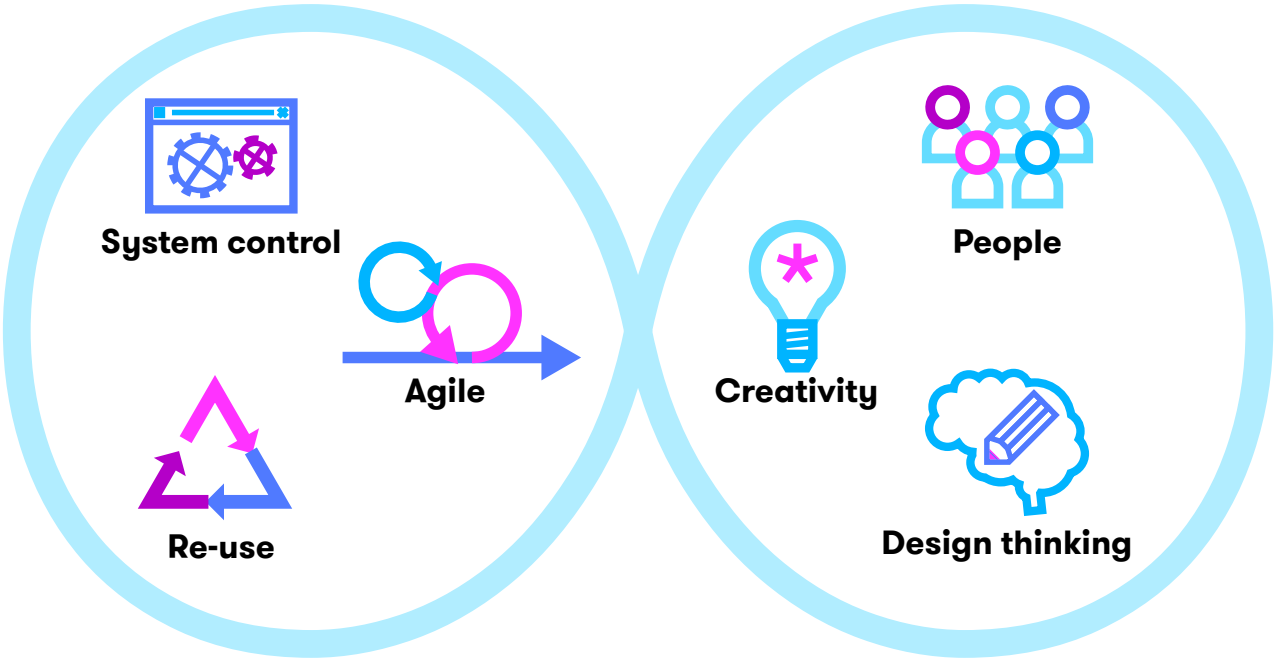
ICTU is the ecosystem's initiator and one of its connectors. The ecosystem forms around a platform to which partners can add value. In this ecosystem, Discipl is part of that platform.

Starting points of effective innovation

In order to get things on the road, the following starting points are crucial: system control, Agile, re-use and social scalability

System control

A different perspective on managerial responsibility is called for. The advice by the Dutch Council for Public Administration on the mann agerial responsibility for systems describes with great accuracy what is lacking and what administrators must take responsibility for. The Council holds that one should shift from system responsibility to system control, from



a hierarchical system with single final responsibility to shared responsibility of all parties involved in the system. Then each party, be it a public or a private party, can be called to account for their contribution to the whole. This means that parties should more frequently discuss their duty and role in that whole.

Each person's or business's contribution to the whole has become pivotal. This is contrary to, for instance, the traditional approach in which parties are behaving like chain partners, which focus on input and output rather than on the intended effects they aim to achieve in service provision by means of the chain. This also applies to the fast beta prototyping of new ideas. This ultimately intended permanent beta is the new basis for the effectiveness and efficiency of the government's business operations. At the same time, it is the basis for the customer experiences with good public services. In short, there is no longer a distinction between massive primary processes and individual made-to-measure performance. And the support resources for those public services are always 'under construction'.

The route to get there leads along the axis of making the whole larger than the sum of the individual parts. That is what in the introduction of the intended ecosystem above was broached briefly in variants en that is what Nick Szabo phrases so beautifully in his Money, blockchains, and social scalability blog. He outlines which mental efforts are needed to achieve such an ecosystem at all. Social scalability, as he calls it, is the ability to leave the institutions, to free ourselves from cognitive limitations and letting go of the behaviour tendencies of mind.

> Social scalability is the ability of an institution (...) to overcome shortcomings in human minds and in the motivating or constraining aspects of said institution that limit who or how many can successfully participate.
>
> – Nick Szabo

PyCon

PyCon is the largest annual meeting for the community that uses and develops Python, the open-source programming language. PyCon is organised by the Python community for the community. The Python community is a strong example of a successful ecosystem gathering:

- the commercial world of software
- science
- beginners
- advanced users

Add to that, lastly, that the participants' diversity and variety is more the rule than the exception, and you will understand why the formula is so successful.

Agile

In many cases, the Dutch government still makes use of the 'Water fall model'. Analysis, design, developing code and testing take place consecutively. Not infrequently accompanied by an overkill of templates, checklists and phase transitions involving complicated – and thus obscure – decision-making processes.
Waterfall has been developed for plannable projects in which the component production process is predictable (Six Sigma-like). However, this model does not work well if specifications can be changed, or if the results or duration (analysis) are unknown.

Alternatively, an Agile method can be use, which in the Netherlands usually amounts to Scrum. The use of Agile for software development is steadily increasing. Agile does not promise a result, but rather a process in which the value can be established and compared against the costs at any moment. Instead of going through the fixed phases (analysis, design, developing code and testing), 'Agilists' believe these are continuous activities.

The Make it happen! report calls for a flexible way of developing digital applications: "By definition, digital applications are never finished, we must abandon the notion of first time right. Digital development is in a 'permanent beta', iterative, experimental state and errors inspire new updates."

By going through these stages continuously:
- quality is improved, since testing starts from day one;
- visibility is enhanced, since it continues to be fully transparent which functionalities have been built and which are still on the to-do list;
- the risk of failure(s) is strongly reduced, since there is scope for direct, short-cycle feedback;
- end users are happier, because they can implement any required improvements mid-process as a result of user experiences;
- commissioning parties are happier, since they do not need to pay exorbitant costs for those adjustments.

A major advantage of Agile is that the inventiveness of developers can be applied to solving requirements; this is not feasible in Waterfall since there, they are already in another phase (Implementation rather than design).

Please note that there is (still) little proof for the success of Agile – we are not deaf to the critical considerations – but there is certainly proof against the waterfall model in software development. Although, is it proof? In a recent Dutch-language column called Agile werken is religie, geen bewezen succesformule (which translates as Working Agile is a religion, not a proven success formula), Richard Engelfriet expertly picks holes in this Standish Group report.
A more nuances understanding can be found in Toward agile: an integrated analysis of quantitative and qualitative field data on software development agility. Lastly, the Syddansk Universitet, describes the combination of Agile and non-Agile in one project.

Quality approach

ICTU staff have engaged in government software development projects for years. On the basis of this many years' hands-on software realisation expertise, ICTU has developed, and written down, a quality approach that

measures the quality of software and the undergone Agile process. It is not measured as a vista, instead, it simply measures specifically how this approach works in practice. To do so, the system consults the common development tools – for instance, SonarQube, Jenkins, JIRA and Git – and does not demand significant manual activities from the teams. Moreover, the quality system knows what the standards are and can issue warnings if the quality deviates from those standards. By the way, the quality system itself is open source too: Quality-report.

ICTU's mission is to bring software development at the Dutch government to the next level, and, if possible, to spread this evolving quality approach within the Dutch government. In that context, a kick-off meeting was held in April 2017, in collaboration with NEN, to interest potential candidates in a joint development of a Dutch Practical Directive (NPR) 5326, which (working title) translates as 'Quality assurance software development in government domain'. In the September 2017 edition of (Dutch-language) ICTU Magazine Frank Niessink, one of the experts involved, tells all about the essence, utility and need of this quality approach.

Before, during and following the 'innovating together' meetings, ICTU will support the open-source ecosystem with its knowledge and experience regarding software quality monitoring, which is especially relevant to open-source software. Meanwhile, ICTU can and will learn variously from the hands-on expertise that developers introduce and contribute to those meetings.

To illustrate

What makes Amazon successful? The American company commands management with vision that is not afraid of trying, with unrelenting focus on the client, excellent operations, optimal service and the willingness to literally offer everything and anything.

And how about Google? There is no greater evidence for Google's success than the fact that it has become a verb. They were the first to understand how creating algorithms could help people search the increasingly fast growing online information. By now, their search engine is preferred by most Internet users. By means of adverts, this search engine generates income that Google uses for fast beta prototyping of new ideas, which are developed further on the basis of user data to ensure new income sources.

DuckDuckGo

We do not aim to present a one-sided image of Google. Google is not fussy where privacy and the protection of personal data are concerned. That is why we draw your attention to DuckDuckGo, an Internet search engine that does emphasise the protection of privacy and attempt to prevent the filter bubble of personalised search results.

Failed projects, such as Google Glass and Google Videos, do not alter that model.

In the Dutch daily newspaper NRC, Paul Iske (Professor of innovation at Maastricht University) and other had reason to advocate dissecting a costly ICT failure such as a plane crash. A plea for the 'brilliant flop'. But obviously, we must always aim to prevent substantial investments in somewhat far-fetched ideas, the way Google did for Glass.

Re-use

Software products in public services – frequently including government data – are often based on closed source, making re-use impossible. While open source is a particularly important driving force behind many successful technologies. Open-source technologies underpin, among other things, what we now know as the Internet. Besides, many programmes we use on a daily basis have been developed on the basis of open-source technologies. For example, Android OS and Apple macOS have been based on the kernel and Unix open source respectively. Across public services, we advocate organising intellectual property and the re-use of the software in such a way that anybody may re-use, adapt and share the source code free of charge. In short, we advocate allowing open source only.

We are not alone! By now, Many organisations have endorsed the open letter calling on their representatives to implement legislation requiring that publicly financed software developed for the public sector must be made publicly available under a free and open-source software licence. If it is public money, it should be public code as well!

There's a law of economics necessity behind this: if all of your competitors are using open-source, well, if you're not, if you're not taking advantage of that rapid innovation, if you're not taking advantage of that completely free resource, than you're lacking behind, and for absolutely no good reason. (…) Using open-source is now just table stakes.

– Allison Randal

Creativity

People are more important than the ideas. Creativity is generated by the intrinsic motivation of individuals and small groups. Innovation is the production of creativity. Therefore, we have no other choice than bringing all sorts and conditions of people, with various backgrounds, knowledge and education, experience and age together in teams and confront them with the day-to-day issues we must deal with as a government. No more. No less. It may seem superfluous to add that these teams centre around people from government, preferably no external parties. We need expertise within the government. This we acquire by providing this creative breeding ground to new, young talents. This we acquire by appreciating and rewarding in those places where the credits are due.

What can you do?

Trendwatching, 'innovating together' meetings, GitHub, software quality, Tech Team and intervision together are a good start for a flourishing open-source ecosystem.

The only way to really bring it to life, is by sharing something that developers can work with. It only takes on a real social significance if government organisations show that many of their issues can be solved using new technologies. It will only gain real importance if governments can experience and learn how we can realise totally new business models without continuously needing to use current economic thinking.

Existing and new initiatives, such as the Weconomics Foundation and the above-mentioned WeQuest, will help build on this.

We invite everybody, public as well as private to do the same and help build the 'new' world of public services within an open-source ecosystem according to the above-mentioned starting points. Therefore, do introduce your issue, question or spotted opportunity during a hackathon or 'innovating together' meeting. Or join in intervision and bring your knowledge and experience.

Are you interested in contributing to this open-source ecosystem? Please contact Giulietta Marani: giulietta.marani@ictu.nl.

Thank you

This paper could not have been written without the willing mental support and the occasional substantive adjustment or addition from Bart Jeukendrup, Floor Terra, Floortje Blindenbach-Driessen, Johan Groenen, Koen Hartog, Marloes Pomp, Mike Dell and Milo van der Linden.

Appendix 1 Open source examples

What good examples of open-source solutions within and for the Dutch government are already available?

Firstly, there is the communication platform Plein Overheid (Pleio, 'government square' in English). This platform has 400,000 users and has functioned well for years. The basis that Pleio was built on, Elgg, software, has always been open-source and can be found on GitHub.

ODC-Noord provides cloud solutions based on OpenStack, while the storage layer is provided on the basis of Ceph. Open source and open standards[2] are important values for ODC-Noord.

The website Data.overheid.nl makes use of open source and open standards in various ways. The list of server software is appealing:

- Red Hat 6 (largely GNU General Public License v.2)
- CKAN 2 (Open Database License)
- Apache Solr (Apache License, Version 2.0)
- Drupal 7 (GNU General Public License, version 2 or later)

The software for AERIUS, the calculating tool for the living environment of the Netherlands National Institute for Public Health and the Environment (RIVM), is on GitLab.

NORA (Dutch Government Reference Architecture) likewise provides immediately usable software with corresponding best practices regarding the topic of Data on the web.

Let's Encrypt

Let's Encrypt is a free-of-charge, automated and open certificate authority (CA)provided by the not-for-profit Internet Security Research Group (ISRG).
This is emphatically different from the certificate authority used by the Dutch government under the heading of PKIoverheid the 'Staat der Nederlanden Root CA' ('The Dutch State Root CA'). How wonderful would it be to replace the latter (expensive) option by the free open variant, so that the Dutch government would sponsor the not-for-profit ISRG!

2 Open source (software) and open standards are often used in the same context, but they are actually two distinct 'entities'. A standard is a kind of blueprint, the manual that everybody must adhere to. Standards are not restricted to software, but form an important part of computer hardware, telecommunications, healthcare, automobile, aviation and other production sectors. Without standards, open source can be no more successful than closed source can! In this context, the Dutch Standaardisation Forum should be mentioned. This organisation aims to promote interoperability and supplier independence by means of open standards for digital data exchange in the public sector.

DataLab Amsterdam is a workplace, knowledge centre and open podium for data professionals and other people interested in data. A place for smart, innovative and accurate data use. On Thursdays, DataLab hosts an open podium centred on data-driven projects, studies and novel use for (the municipality of) Amsterdam.

The Stem van West (which translates as 'The Voice of West') provides people living in the borough of Amsterdam-West an online meeting point where they can submit proposals for their own neighbourhood. A new park? Extra, or rather fewer parking spaces?

A bit further from home: all technological solutions developed within the American National Security Agency (NSA) are available to the public.

Appendix 2 Foundations

pen source, open standards and open data represent quite difficult issues for the government. The ease of closed-source tendering to private parties is a long-instilled tradition that is hard to let go of.

No least because a lot of essential support of operational management processes have a long history and have often resulted in complex ICT landscapes. Still, the perception starts swinging the other way. For instance, there are by now a considerable number of foundations that manifest themselves in the field of open source and government.

While it is impossible to give an exhaustive survey, we will name a few.

The Dutch Open Source and Government Foundation ('Stichting Open Source & Overheid' in Dutch) was established in 2015 to create the conditions for a successful transition to open source in government institutions.

Open State Foundation is working at digital transparency by having public information available as open data and making it accessible for re-use. They are convinced that this reinforces democracy and creates substantial social and economic value. In a recent article in the Dutch magazine iBestuur on expectation management regarding open data, Tom Kunzler discloses why governments should also look for collaboration across their own boundaries. In his words: "The classical House of Thorbecke [i.e. the administrative organisation of the Netherlands] and local autonomy should not be an excuse not to work together!"

SURF[3] is the collaborative ICT organisation for Dutch education and research, and by now offers a number of open-source services.

During the Dutch Blockchain Hackathon in Groningen (February 2017), a team from the Dutch municipality of Zuidhorn, consisting of talents from Moldavia, Ukraine, Germany and the Netherlands, developed the prototype of an app with which partners in the social domain can offer their services to residents in a user-friendly way. Following the hackathon, the team founded the Forus Foundation. What does the Forus Foundation aim for? Forus is a contraction of 'for us'. It is their mission to deliver every project totally decentralised and open-source. The Forus Foundation develops decentralised solutions that will ultimately be used and managed by the public.

By Code for NL, the Netherlands connects to a global network of civic innovators that deploys technology to reinforce governments and enhance civic participation.

3 SURF is a cooperative rather than a foundation.

Waag Society launched Code for NL on 6 March 2015.

In the Netherlands and Flanders, a sizable group is involved in international open-source projects, such as MapServer, GeoNetwork, QGIS, OpeLayers, as well as with specifically Dutch projects like the Flamingo Map Viewer. OSGeo.nl intends to connect existing communities, since they can possibly learn from each other and since there is a large group of potential users whose interest in open source goes beyond one specific project.

The Dutch Open Geo foundation is working at making and keeping geographical information in the public domain.

Delta10 develops software in collaboration with public administrations. This software is freely available to anyone and can easily be re-used by other public administrations. It aims for public administrations to have more control over the ICT they use.

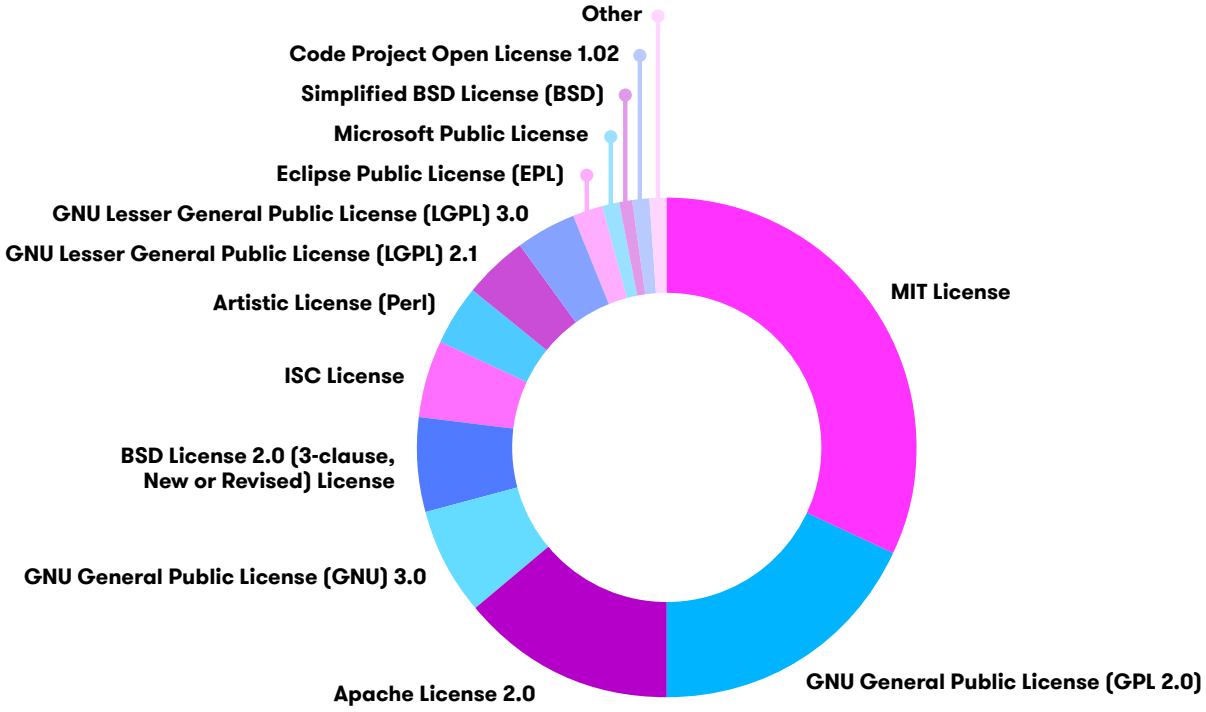
The board of the Dutch Drupal Foundation (in Dutch: 'Stichting Drupal Nederland' (SDN)) consists of volunteers who have committed to the foundation, aiming to promote the Drupal Content Management Systeem (CMS) in the Netherlands. One way for SDN to promote Drupal is by organising events, such as DrupalJam, Splash Awards and Drupal Training Day.

Appendix 3 Open source licences

Open source licences must comply with the Open Source Definition (OSD), drawn up by the Open Source Initiative (OSI).

The alphabetical list includes approximately ninety (!) different licences, which hardly contributes to the acceptance of open source. MIT License, GNU General Public License (GPL) 2.0, Apache License 2.0, GNU General Public License (GPL) 3.0 and BSD License 2.0 (3-clause, New of Revised) License serve approximately eight percent of the open source licensing market.

Also worth mentioning is the ISC licentie (anothe five percent),), published by Internet Systems Consortium (ISC), the organisation behind the development and distribution of, among others, the DNS software, BIND. Lastly, the European Union has introduced the European Union Public Licence and shows the main characteristics of and differences with GNU General Public License (GPL) 3.0. in an accessible comparison table.



Making the right choices in this fragmented licensing landscape is no sinecure. Jurist Arnoud Engelfriet at ICTRECHT Arnoud Engelfriet van ICTRECHToffers few rules of thumb for building on existing open source or one's own software.

For now, we use the GPLv3 licence with and for Discipl because – and here we quote Arnoud Engelfriet – "open source is then used as a kind of collaboration agreement in which anyone can join, but must share the results." The disadvantage of this choice is, as Engelfriet notes, that "own code that integrates with that source code must also be made available." Not every business will be willing to do so. We appreciate and understand this. It is not cast in stone.

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