Big Policy Canvas

D4.1 Methods, Tools, Technologies and Applications – 1st Version

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List of Acronyms

Abbreviation / acronym	Description
DoA	Description of Action
EC	European Commission
Dx.y	Deliverable number y belonging to WP x
SWOT	Strengths, Weaknesses, Opportunities, Threats
WP	Work Package

Executive Summary

Big Policy Canvas aims to support the process of transforming the public sector into an effective, efficient, consistent and evidence-based policy making structure. At the same time, it aims to explore the potential of Big Data technology towards fulfilling that goal. Within the scope of the project is to also provide an active community, where the needs arising from the transformation of the public sector can be coupled with emerging trends, as well as with assets that are currently used in the public and private sectors and have the potential to fulfil those needs or trends. This process is going to result in the Big Policy Canvas Panorama and is expected to bring out opportunities that will make the public sector effective and evidence-based.

The main goal of this deliverable is to report on the assets that currently exist in both the public and private sectors and that can be helpful in the transformation of the policy making process. The assets' description included in the present document is the result of the compilation of inputs that have come up from a comprehensive desk-based research of the state-of-the-art, interviews with IT experts and articulation of information from focus groups. The inputs have also been enriched through an online survey, as well as through Task 3.1 outputs, and thereby the identified needs and trends.

These activities have resulted in the identification of 147 assets, both of methodological and technological character, including applications / systems / tools, code lists / ontologies / taxonomies / vocabularies, databases / data sources, frameworks / methods / models, platforms / portals, standards or use cases. These assets have been mapped against twelve different policy domains, namely Agriculture, Fisheries, Forestry & Foods, Economy & Finance, Education, Youth, Culture & Sport, Employment & Social Security, Environment & Energy, Health, Institutional Questions / Internal Affairs, Foreign Affairs and Defence, Justice, Legal System & Public Safety, Public Affairs, Innovation, Science & Technology and Urban Planning & Transport.

The identification of assets that can serve the policy making process stands as a crucial factor for the development of the Big Policy Canvas Knowledge Base. The latter is one of the key outputs of the project and is going to serve as a *state-of-the-art*, *online*, *dynamic repository*, that will hold the knowledge to be gathered, structured along the three dimensions of needs, trends and assets. The assets are going to be presented in the Knowledge Base as analysed in this report. An explanatory description and a link to the asset's website will be provided, along with the sector it originated from (public or private), the policy cycle stage in which it can be leveraged and the policy domain or domains it can be associated with. Furthermore, the technology readiness level, the customisation cost and the open license availability (in case of a technological asset) as well as the ease of use will be provided. Finally, each asset will be associated with the trend(s) it addresses and the need(s) that it serves.

The present report includes the necessary definitions along with the methodology employed for identifying and assessing the assets, as well as an exhaustive analysis of the state-of-the-art. An overview of the identified assets, as well as their mapping to policy domains in numbers are also provided. Last but not least, the Knowledge Base and its infrastructure, structure and content are introduced, as this report is a first version of the Big Policy Canvas Panorama.

1 Introduction

1.1 Purpose of the document

Big Policy Canvas is guided by the vision to transform the public sector into an effective, efficient, consistent and evidence-based policy making structure. In this respect, it lays particular emphasis on the potential of Big Data technology for the design, development and implementation of effective, evidence-based and precise policies and targets the development of an ever evolving methodological framework, backed up by an active community, for the rapid identification and assessment of actual public sector needs, as well as relevant emerging trends, that may be respectively accommodated or promoted by the exploitation of the specific technology. It further targets the identification of relevant methods, tools, technologies and applications that are similarly capable of being used in a Big Data environment and pursues to couple these with the aforementioned identified needs and trends with the view to formulate a panorama of the public sector and, consequently, the policy making procedure disruption opportunities' landscape, thus bringing forward application domains, where such opportunities are higher, due to either a domain's great interest and high importance for the public sector, the accumulation in it of highly urgent and important needs or the identification of a great potential for innovation.

Along the above lines, a key task within the Big Policy Canvas project is the design and development of an inclusive Knowledge Base, which will accumulate all the knowledge regarding the needs, trends and methods, tools, technologies and applications that will be identified along the course of the project, so as to facilitate the diffusion of knowledge and the promotion of innovation towards the stakeholders involved.

The present deliverable is released within the context of Work Package 4 "Methods, Tools, Technologies and Applications Knowledge Base" and is in particular associated with Tasks 4.1 "Methods, Tools, Technologies and Applications - Public Sector Best Cases and Private Sector Innovation" and 4.2 "Methods, Tools, Technologies and Applications Panorama (Knowledge Base)". The former focuses on the identification and analysis of state-of-the-art and emerging methodologies, tools, technologies and applications that make a difference today both in the context of the public, as well as in the context of the private sector, whereas the latter targets the consolidation of the aforementioned elements (i.e. the methodologies, tools, technologies and applications) along with the identified and assessed needs and trends in a three-dimensions mapping. Along the above lines, the objective of the present deliverable is to report on the findings of Task 4.1, as well as to provide the first version of the Big Policy Canvas Panorama, incorporating feedback from Tasks 4.1 and 4.2 but also from Work package 3 and Task 3.1 in particular.

An updated version of the Big Policy Canvas Panorama is going to be provided in the context D4.2, which will further include the investigation of the Panorama's contents from a big data perspective.

1.2 Relation to other project work

Deliverable D4.1 is the first one of the WP4 series of deliverables, reporting on the Big Policy Canvas Panorama. The deliverable draws inputs from Task 4.1 regarding the identified assets, aka methodologies, tools, technologies and applications, as well as from Work package 3 and Task 3.1 in particular, concerning the identified needs and trends. It further draws input from Task 4.2 concerning the design of the Big Policy Canvas Knowledge Base and the organisation of its contents. In parallel, deliverable D4.1, and thereby tasks T4.1 and T4.2 in particular, pave the way for the investigation of the Panorama's contents from a big data perspective within the frame of Task 4.3, while also feeding the Gap Analysis to be conducted within Work package 5 and Task 5.1 in specific. It is further worth noting that deliverable D4.1, and thereby Task 4.2, i.e. the Big Policy Canvas Panorama provides material for the application of the Needs' and Trends' Assessment Framework in Task 3.2. Last but not least, D4.1 provides material for the validation activities of Work package 2, which may in turn result in the collection of useful feedback that will be directly integrated in the online version of the Big Policy Canvas Knowledge Base. Figure below illustrates D4.1 relations to WP4 and other project tasks.

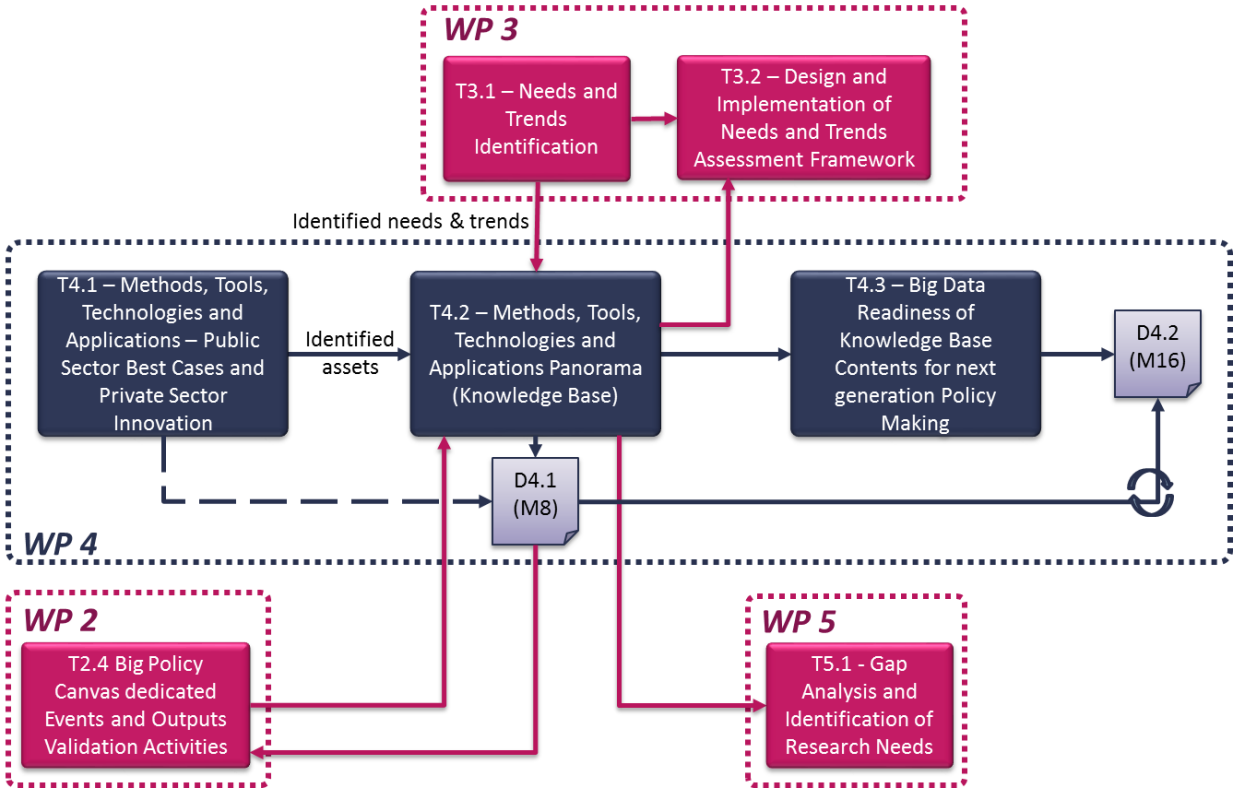

Figure 1: Relation to other project work

1.3 Structure of the document

The rest of this document is structured as follows:

- **Chapter 2** reports on the outcomes of the activities, conducted in the context of Task 4.1, namely summarises the findings of the identification and analysis of state-of-the-art and emerging methodologies, tools, technologies and applications that make a difference today both in the public and private sectors. In this respect, it exposes the foundations of the work conducted in terms of related definitions and the methodology used, whereas it provides an overview of the identified assets.
- **Chapter 3** reports respectively on the outcomes of Task 4.2, thereby introducing the Big Policy Canvas Knowledge Base, describing its infrastructural background and exposing the Big Policy Canvas Panorama, i.e. the rationale behind the correlation of the identified needs, trends and methodologies, tools, technologies and applications.
- **Chapter 4** then links the work presented in the current deliverable with future planned activities.
- **Chapter 5** finally summarises the contents of the deliverable and reports relevant conclusions.

2 Assets for Policy Making

2.1 Definitions

The present deliverable targets, as clarified in the introductory section of this document, to report on the findings of Task 4.1. These concern as already suggested methods, tools, technologies that make a difference today both in the context of the public, as well as in the context of the private sector. Such elements, henceforth called assets, signify tools that may prove useful to advancing the policy making process, thus contributing to building a more effective, efficient, precise and evidence-based public sector. In the context of Big Policy Canvas an asset may either be one of the following items:

- an application or system
- a code list, ontology, taxonomy or vocabulary
- a database or data source
- a framework, method or model
- a platform or portal
- a standard
- a use case (or best practice)

Attention is drawn to the fact that an asset may be either of technological or methodological nature. Applications or systems and platforms/portals are considered as technological, whereas code lists / ontologies, taxonomies / vocabularies, data sources, methods, standards and use cases are considered as methodological assets.

The Oxford dictionary defines an asset as "an item of property owned by a person or company, regarded as having value and available to meet debts, commitments, or legacies" [1].

In the accounting perspective, an asset is a resource that can generate economic benefits. The term asset distinguishes in the accounting theory between tangible and intangible assets. Tangible assets have, as the name implies, a physical form. Examples of intangible assets include equipment, machinery, and buildings. An intangible asset, on the other hand, is characterised as an "identifiable non-monetary asset without physical substance". Examples for such assets are patents, brands but also computer software, licenses, etc [2].

Since the present deliverable deals primarily with methods, tools, technologies, and applications and these do not have a physical form in the narrower sense, intangible assets, are considered here.

2.2 Assets identification methodology

The asset identification approach is based on primary and secondary data sources. The main research question is:

Which assets exist in public and private sector that can be helpful in transforming the policy making process?

The assessment of the identified assets has a special focus on the origin, the policy cycle stage, the policy domain, the technological readiness level, implementation/ customisation costs, the availability of an open licence and the ease of use.

The results will later be included in the knowledge base and linked to the needs and trends. The research process has five phases.

- **Phase 1: Asset identification and assessment through desk-based research**

In the first phase, a descriptive research approach has been conducted through an internet research and literature analysis. For this, various best cases and innovations were considered, both from the public sector and from the private sector. Various studies, as well as products from the private sector, have been analysed. As a result, a large number of relevant technologies, tools, methodologies, applications, software, platforms etc. could be identified, which will be taken into account in the further course of the project.

- **Phase 2: Asset identification and assessment through interviews with IT experts**

In the second phase, additional assets were identified and assessed through interviews and focus groups with IT experts. The interviewees wish to remain anonymous but can be characterised as shown in Table 1. With the first four interviewees, as well as with interviewees 20180405_1 and 20180405_2 two focus groups have been organised, whereas with the rest of the interviewees online or face-to-face interviews have been conducted. The ID refers to the date on which the interview or focus group took place. The interview guidelines can be found in Annex II. Further online and offline interviews will be conducted to enrich the project outcomes with regard to the assets' dimension of the Knowledge Base. Any additional findings will be considered in deliverable D4.2.

Table 1: IT Experts' profile

ID	Function	Professional Expertise
20180226_1	Senior university researcher	Expertise in eGovernment, context awareness systems, decision support systems, knowledge management, business process reengineering, and eParticipation
20180226_2	Researcher, Electrical and Computer Engineer	Expertise in the design and development of Web-based software applications and Big Data and Data Analytics applications
20180226_3	Researcher	Specialised in Computer Science and in particular Data Mining, Information Retrieval and Natural Language Processing
20180226_4	Researcher	Experience in Future Internet and Enterprise Systems and web technologies, Semantic Web, Sentiment Analysis and Machine Learning
20180405_1	Technological innovation consultant	Consulting on Big Data and Artificial Intelligence projects for companies and public administration
20180405_2	Development of innovation strategies	Specialised in ICT and doctoral studies in public

ID	Function	Professional Expertise
	in a public technology centre.	innovation policies
20180425_1	Researcher	ICT expertise: architectures and system design, project management and consulting; especially connected to E-Government and Open Data
20180425_2	Researcher	ICT focus on Open Data, Smart City, Smart Energy and Green mobility
20180518_1	Owner of company in management consulting & Member of the Board of Directors in SEPE (Greek association of IT and Telecommunications Enterprises)	Expertise in ICT, law and economics
20180521_1	Post-doctoral researcher	Expertise in e-government
20180525_1	IT Expert	Background in Telecommunications engineering, SW technologies, semantic technologies and Big Data - expertise in strategy setting, management, market research and European policy
20180530	Head of ICT Directorate	Expertise in ICT

- **Phase 3: Asset identification and assessment through an online survey**

An online survey was created to continuously identify new assets and classify them into the assessment framework. The survey is already published on the project´s website and is available in four languages (English, Greek, German, and Spanish), whereas it is already being promoted through the project social media channels.

- **Phase 4: Analysis and description of the assets**

All assets are characterised as applications/systems, code lists/ontologies/taxonomies/vocabularies, data sources, methods/models, platforms/portals, standards or use cases. The analysis and description of the identified assets further lays emphasis on their origin, the policy cycle stage, the policy domain, the technological readiness level, the implementation/customisation cost, the ease of use and the availability of an open license. The last four elements are to be composed at a later stage by means of AHP, a multi-criteria decision making methodology to calculate the assets' score. All assets have been verified

- **Phase 5: Transfer of identified assets to the Knowledge Base**

The assets will be prepared for the validation through the assessment framework. Table 2 shows exemplarily how assets will be reported for validation through the assessment framework as well as for inclusion in the Knowledge Base.

Table 2: Exemplary Knowledge Base asset entry

Field name	Asset		
Description (& Link)			
Type			
Origin			
Policy Cycle Stage (s)			
Policy Domain (s)			
TRL		**Implementation /Customisation Cost**	
Ease of use		**Open License Availability**	
Mapping to Needs and Trends			
Serves (Need)			
Addresses (Trend)			

2.3 Identified Assets Overview

In this section, an overview of the identified assets is presented with respect to the target values, set in the Big Policy Canvas DoA. As demonstrated in Table 3 below, the total number of identified assets, whether these are applications / systems / tools, code lists / ontologies / taxonomies / vocabularies, databases / data sources, frameworks / methods / models, platforms / portals, standards or use cases, adds up to 147. Out of these, 47 are of methodological nature (namely code lists / ontologies, taxonomies / vocabularies, data sources, methods, standards or use cases) and the rest 100 are technological assets (i.e. applications / systems / tools, platforms / portals). Within this set, 28 assets stand for use cases, whereas another 19 can be identified as best practices. Attention is drawn to the fact that the terms in brackets correspond to the terminology and definitions adopted by the Big Policy Canvas project and indicate how the target values originally defined in the project DoA map to the actual findings.

Table 3Table 4 further demonstrates how the identified assets map across the adopted list of policy domains, as well as how many of them are of methodological / technological character. It can be observed, that methodological assets are outnumbered by technological ones in all the categories, except for those of Health, Agriculture, Fisheries, Forestry and Food and the subset of assets that can apply to "All" policy domains.

It is worth noting that there is a significant number of assets identified, both technological and methodological, across all policy domains. The identification of additional assets will be a continuous process until M16 of the project, when deliverable D4.2 with the update of the Big Policy Canvas Knowledge Base is due, and the current list is going to be further enriched with more items that will be reported directly within the latter.

Table 3: Overview of assets identified

Indicator	Target Value	Achieved (by M8)
# of applications **(assets)** provided	20	147
# of application cases **(use cases)** provided	30	28 (!)
# of methodologies **(methodological assets)** provided by domain	5 (i.e. 60 in total)[1]	47 (!)
# of tools/technologies **(technological assets)** provided by domain	5 (i.e. 60 in total)	100
# of best practices provided	20	19 (!)

Table 4: Identified assets by domain

Policy Domain	Methodological Assets	Technological Assets
Agriculture, Fisheries, Forestry & Foods	5	4
Economy & Finance	6	9
Education, Youth, Culture & Sport	1	4
Employment & Social Security	1	5
Environment & Energy	4	13
Health	5	4
Institutional Questions / Internal Affairs	3	6
Foreign Affairs and Defence	3	7
Justice, Legal System & Public Safety	1	6
Public Affairs	1	0
Innovation, Science & Technology	4	21
Urban Planning & Transport	3	12
All	12	9

[1] Provided that 12 policy domains have been identified, the target value for the total number of assets adds up to 60.

3 Big Policy Canvas Knowledge Base

3.1 Introduction to the BPC Knowledge Base

The Big Policy Canvas Knowledge stands as one of the key outcomes of the project that, along with the Roadmap to be prepared in the context of WP5, constitute the unique value proposition of Big Policy Canvas.
The BPC Knowledge Base is meant to be a *state-of-the-art*, *online*, *dynamic repository* that will act as the placeholder for all the knowledge to be produced during the project, structured along three dimensions; those of Needs, Trends and Assets.

- It will be **state-of-the-art** in the sense that it will incorporate the project findings on current and emerging needs and trends impacting public administrations and the policy making process in specific, *but also* on the pool of technological and methodological assets that can be used to accommodate them;
- It will also be **online** in the sense that it will be integrated into and made accessible through the BPC web site;
- and **dynamic** in the sense that it will further provide a comprehensive mapping among the aforementioned three dimensions, thereby the needs, trends and assets.

The Knowledge Base is additionally meant to act as the infrastructure for the updating and maintenance of the accumulated knowledge, both during and beyond the end of the project, with the view to facilitate its uptake and reuse by the public sector and the rest of interested stakeholders, thereby policy makers, public officials and researchers.

3.2 Infrastructure, Structure and Content

To facilitate community building purposes, but also to ensure that there is a single point of reference with regard to the project outcomes, the BPC Knowledge Base will be made available as an integral part of the project website[2]. Thereby, it will take advantage of the website resources and functionalities, which will, in turn, serve not only the systematic presentation of the collected materials but also their active review and commenting by the BPC community members (i.e. website registered visitors).
The content to be made available through the BPC Knowledge Base will be structured, as already clarified in Section 3.1 along three dimensions; those of Needs, Trends and Assets. The information to be presented for each of the aforementioned items is more specifically going to comply with a standard structure, incorporating a number of common for all items or item-specific attributes, as shown in Figure 2. These are going to include an explanatory *description* of each item, its *type*, therefore a high level classification of it in certain categories, its *scope* (in case of needs and trends) or

[2] http://www.bigpolicycanvas.eu/community/repository

origin (in case of assets), *the policy cycle stage* or *stages* and *policy domain* or *domains* in which it can be mapped, as well as a metric of its importance, the latter entitled as *criticality* (for needs), *intensity* (for trends) or *score* (for assets), depending on the item.

On the side of assets, their description will be complemented by an assessment of their *big data readiness*, the latter justified by a *SWOT-like analysis* and references to relevant *use cases*.

In particular, considering the 'type' attribute, a need will be classified as *strategical*, *organisational*, *informational*, *legal* or *technical*, whereas a trend will be characterised as *technological*, *conceptual*, *societal* or *cultural*. Accordingly, an asset will be categorised as *an application*, *system* or *tool*, a *code list*, *ontology*, *taxonomy* or *vocabulary*, a *data source*, a *method* or *model*, a *platform* or *portal*, a *standard* or a *use case*.

The 'scope' attribute will be common for needs and trends, enabling to mark the latter as *local*, *regional*, *national*, *EU-wide* or *international*, whereas the 'origin' attribute for assets will indicate their origin from the *public* or *private* sector.

The 'policy cycle stage' will draw its value from the agenda setting, policy design and analysis, policy implementation and policy monitoring and evaluation phases of the policy making cycle [3], whereas the 'policy domain' attribute will be filled-in, taking into account an assortment of twelve fields [3], including

1. Agriculture, Fisheries, Forestry & Foods
2. Economy & Finance
3. Education, Youth, Culture & Sport
4. Employment & Social Security
5. Environment & Energy
6. Health
7. Institutional Questions / Internal Affairs
8. Foreign Affairs and Defence
9. Justice, Legal System & Public Safety
10. Public Affairs
11. Innovation, Science & Technology
12. Urban Planning & Transport

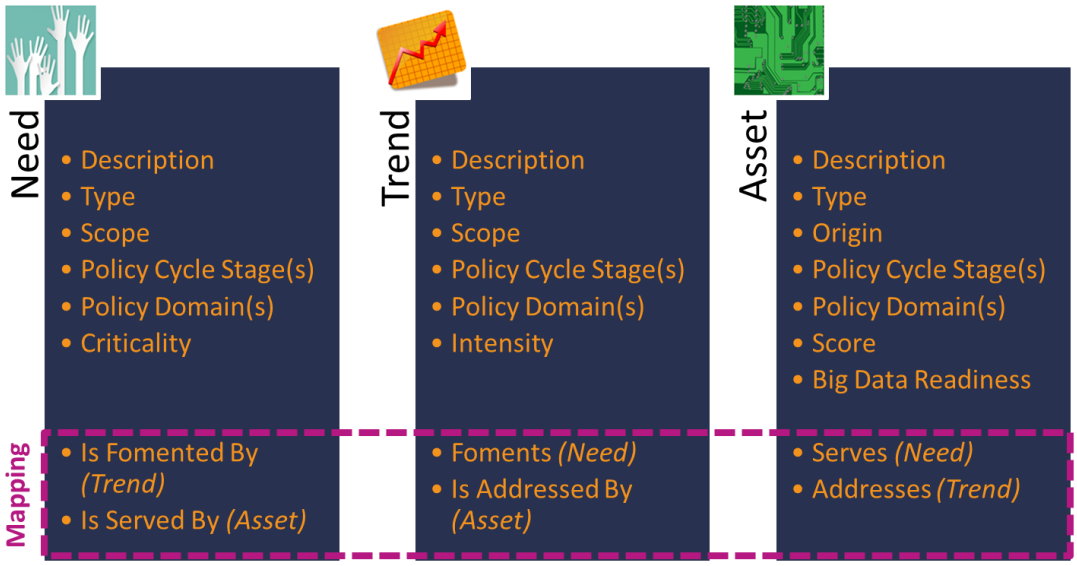

Figure 2: Knowledge Base Structure

The description of each item will be further complemented by its mapping to other elements of the Knowledge Base, bringing forward potential inter-relations among needs, trends and assets. Along the above lines:

- *needs* will be linked to the *trends* they are fomented by and the *assets* by which they can be served,
- *trends* will be linked to the *needs* that they foment and the *assets* by which they can be addressed, whereas
- *assets* will be accordingly linked to the *needs* that they can serve and the *trends* they address.

3.3 Big Policy Canvas Panorama

The identification of correlations among needs, trends and assets will result in 3-dimensions mapping, as illustrated in
Figure 3.

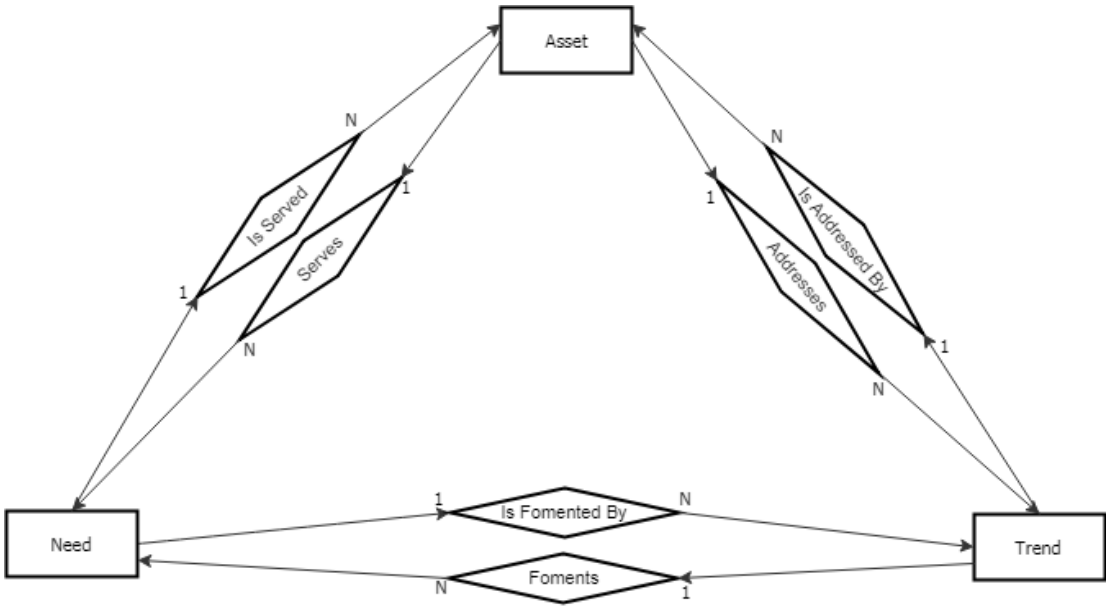

Figure 3: BPC Knowledge Base 3-dimensions mapping

At the time being, the Knowledge Base is being populated with the materials, i.e. needs, trends and assets, collected in the context of Tasks 3.1 and 4.2, which in turn enumerate 28 needs, 28 trends and over 147 assets.

4 Planned Further Work

The analysis presented in this deliverable, namely the detailed recording of methodologies, tools, technologies, applications, etc. that may support the policy making process will be further complemented in the context of Task 4.3 by the investigation of the former elements from a Big Data perspective. In particular, assets will be evaluated in terms of their readiness or potential to the use of Big Data. The latter will be justified with the help of relevant use cases, as well as a SWOT-like analysis that will identify assets' strengths and weaknesses, as well as big data innovation opportunities, tailored to the profile of the public sector, along with relevant imposed threats. Although this side analysis will take place for assets only, appropriate assumptions will also be drawn for the rest of the Knowledge Base contents, thanks to the Big Policy Canvas Panorama, i.e. the three-dimensions mapping among needs, trends and assets. Overall, the information collected will make it possible to assess the big data readiness of the public sector.

On the other hand, the Big Policy Canvas Panorama, will constitute the main input for the gap analysis to be conducted within Task 5.1. The latter will focus on the identification of the gaps that hinder the rapid and effective uptake of data-driven policy-making solutions and approaches. The gaps and research needs will be identified by comparing the needs of public administrations identified in WP3 and the potential to be covered through the exploitation of existing assets, identified in WP4.

5 Conclusions

This report is a first version of the Big Policy Canvas Panorama and demonstrates the findings of Tasks 4.1 and 4.2. The main aim it fulfils is to address the issue of whether there are available assets in the public or private sector that can be of assistance in the transformation of the policy making process.

The process followed in order to identify and assess the available assets in both the private and the public sector, has included a desk-based research, in the context of which the assets found in the internet and the literature have been recognised and evaluated. Further assets have arose from the conduction of interviews with the IT experts and the organisation of the focus groups. The research method has also been enhanced by an online survey that was made available in the Big Policy website and has further been circulated by the members of the consortium to their contacts. The next step has involved the analysis of the identified assets. The latter entails a short description of the asset, its type (whether it is for instance a methodology, an application, a taxonomy or a vocabulary etc.), its origin (public or private sector), the policy cycle stage, in which it could be used, as well as the policy domain where the asset could be of good use. Assets have further been reviewed on their technology readiness level, their implementation or customisation cost, their ease of use and the availability of an open license. Finally, each asset has been mapped to related trends that it may address, as well as needs that it may serve. Overall 147 assets have been identified, that can be exploited in 12 different policy domains that cover the vast majority of the policy making process spectrum.

With the activities carried out within the aforementioned tasks, the identified assets descriptions are ready to be uploaded in the Big Policy Canvas Knowledge Base, which is the focal point, where the accumulated knowledge will be updated and maintained. The present deliverable will be used as input in Task 4.3 where the identified assets will be assessed with regard to their readiness or potential to be interlinked with Big Data. In this way, useful assumptions will be drawn on whether Big Data technologies can be deployed in the transformation of the public sector to an efficient, effective and evidence-based policy making structure.

References

[1] https://en.oxforddictionaries.com/definition/asset

[2] International Accounting Standards, IAS 38 https://www.ifrs.org/issued-standards/list-of-standards/ias-38-intangible-assets/

[3] Big Policy Canvas deliverable lead author Ourania Markaki (ed.), D3.2 Design and Implementation of Needs and Trends Assessment Framework. Deliverable of the Big Policy Canvas project, 2018.

Annex I: Assets

I.1 Applications

Bechtle solutions			
Description (& Link)	With its own locations in 14 European countries and with partnerships on all continents, the development of international IT solutions is part of Bechtle's day-to-day business. This includes leading customers safely through the complex challenges of European and global procurement and providing the right IT solution with great flexibility. Official partner for NATO Cyber Defence (https://www.bechtle.com/it-services/managed-services/managed-network-and-security).		
Type	Application/ Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Foreign Issues and Defence		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Deeper understanding of IT potential and IT processes		

DCAT Application Profile for Data Portals in Europe (DCAT-AP)			
Description (& Link)	DCAT-AP enables the exchange of dataset descriptions between portals, thus increasing the access to and reusability of datasets (https://ec.europa.eu/isa2/sites/isa/files/leaflet_dcat-ap_lr_v13.pdf).		
Type	Application/ Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Foreign Issues and Defence		
TRL	8	**Implementation /Customisation Cost**	Low

Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Deeper understanding of IT potential and IT processes		

ENAP			
Description (& Link)	ENAP Holding acknowledges Sustainable Development as one of the four cornerstones of its Strategic Plan and channels its value proposition to becoming a company integrated with the community and environmentally accountable. Within the framework of the impact assessment, it is necessary to examine whether the effects of a project correspond to sustainable development in accordance with the German legislation. The central reference point for the audit is the German Sustainability Strategy with its goals and management rules (https://www.enap.bund.de/intro).		
Type	Application		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Environment & Energy		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Performance measurement		
Serves (Need)	Development of domain specific target and indicator systems		

Wetter.com			
Description (& Link)	Wetter.com is an App, which collects and shows weather information in Germany and Europe. It's a classic example of the use of Big Data in our society (https://www.wetter.com/).		
Type	Application		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	8	**Implementation /Customisation Cost**	Low

Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Predictive Analytics		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

Buienalarm			
Description (& Link)	An App, which collects data and shows weather related information (e.g. duration of rain showers) but also predicts the weather in the Netherlands (http://www.buienalarm.be).		
Type	Application		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Predictive Analytics		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

They say sentiment analysis API (Preceive)			
Description (& Link)	The analysis is powered by a hybrid Natural Language Processing (NLP) engine that runs highly sophisticated linguistic algorithms and Machine Learning classifiers. The engine is wrapped in a platform-agnostic REST API service that enables your software applications, workflows, and services to receive rich TheySay JSON metadata with minimal integration work (http://www.theysay.io/product/preceive/).		
Type	Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	5	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			

Addresses (Trend)	Machine Learning
Serves (Need)	Process and resource optimization

Google Fusion Tables			
Description (& Link)	Google Fusion tables is a web application for data analysis, large data-set visualisation, and mapping. It allows users to easily create data visuals and publish them online instantly with provided subsets and an easy format similar to online files. It further supports the ability to work through larger data sets including filtering, sorting, summarising them in collaboration with other users online. It enables users to share and combine multiple tables between users and publicly available data and merge them into one. The application is still experimental and its API has released V2 (https://support.google.com/fusiontables/answer/2571232).		
Type	Web Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	3	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Big Data		
Serves (Need)	Cross-linked information exchange		

Opinion Crawl	
Description (& Link)	Opinion Crawl is an online sentiment analysis for current events, companies, products, and people. Opinion Crawl allows visitors assess Web sentiment on a topic – a person, an event, a company or a product. The user can enter a topic and get an ad-hoc sentiment assessment of it. For each topic, the user gets a pie chart showing current real-time sentiment, a list of the latest news headlines, a few thumbnail images, and a tag cloud of key semantic concepts that the public associates with the subject. The concepts allow to see what issues or events drive the sentiment in a positive or negative way. For more in-depth assessment, the web crawlers would find the latest published content on many popular subjects and current public issues and calculate sentiment for them on ongoing basis. Then the blog posts would show the trend of

	sentiment over time, as well as the Positive-to-Negative ratio (http://opinioncrawl.net/).		
Type	Online Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

Cool Farm Tool Water			
Description (& Link)	Cool Farm Tool water metrics enable farmers quickly and easily account for their crops' water needs and gain insight into better practice (https://coolfarmtool.org/coolfarmtool/water/).		
Type	Web Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Agriculture, Fisheries, Forestry and Foods		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart surveillance systems		
Serves (Need)	Ensure availability of (real-time) information and knowledge Process and resource optimisation		

Agrivi farm management	
Description (& Link)	Helps farmers plan, monitor and analyse all activities on their farm easily (http://www.agrivi.com/en/farm-management).
Type	Web Application

Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Agriculture, Fisheries, Forestry and Foods		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work Smart surveillance systems		
Serves (Need)	Process and resource optimisation		

OPEN ARTFISH			
Description (& Link)	The toolkit comprises a generic database (OPEN ARTFISH) and a mobile phone application. The toolkit's primary objective is to facilitate the implementation of cost-effective and sustainable routine data collection, storage and analysis of data, using the appropriate statistical procedure (http://www.fao.org/3/a-i7680e.pdf).		
Type	Application		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Agriculture, Fisheries, Forestry and Foods		
TRL	6	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Big Data		
Serves (Need)	Cope with the production of huge volumes of data Comprehensive knowledge and information management		

FishstatJ	
Description (& Link)	FishStatJ is a Java-based desktop application which provides users with access to a variety of fishery statistical datasets. It consists of a main application and several workspaces that include the datasets. FishStatJ key features are: (1) statistical datasets browsing, data mining, charting and reporting; (2) filtering, grouping and aggregation through hierarchical dimensions (https://data-bioeconomy.jrc.ec.europa.eu/dataset/beofao-fao-

	fishery_global_capture_production/resource/17ae4f93-07ff-40fb-a1e1-44c3992fb4bf).		
Type	Web application		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Agriculture, Fisheries, Forestry and Foods		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Big Data		
Serves (Need)	Cope with the production of huge volumes of data		

Workday			
Description (& Link)	Workday provides enterprise cloud applications for financial management, human capital management (HCM), payroll, student systems, and analytics (https://www.workday.com/en-us/industries/government.html#?q).		
Type	Web application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Economy and Finance, Employment & Social Security		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Cloud Computing		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

World in figures	
Description (& Link)	Provides access to over 100 country ranking indices (https://worldinfigures.com/#close).
Type	Web application
Origin	Private Sector
Policy Cycle Stage (s)	Policy Design and Analysis

Policy Domain (s)	Economy & Finance		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

Diabetis Plus			
Description (& Link)	An application which is capable of an analysing of your blood sugar level (http://www.diabetesplus.info/de/).		
Type	Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Health		
TRL	9	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

Runstatic Applications			
Description (& Link)	Runestatic offers a vast amount of diagnostic health tools and apps for the smart phone communities (https://www.runtastic.com/de/apps).		
Type	Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Health		
TRL	9	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		

Serves (Need)	Ensure availability of (real-time) information and knowledge

The OO Software			
Description (& Link)	Official Service partner for Microsoft and NATO.The main aim is that the customer should be able to concentrate on the important things, without having to waste time on or worry about maintaining their systems. That has led to the development of numerous tools that offer immeasurable help with performance optimization, data security, data imaging and with the recovery lost data. (https://blog.oo-software.com/en/about)		
Type	Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Foreign Affairs and Defence		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	Low	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Smart surveillance systems		
Serves (Need)	Comprehensive knowledge and information management		

ALERTS (Automated Land change Evaluation, Reporting, and Tracking System)			
Description (& Link)	ALERTS (beta), the Automated Land change Evaluation, Reporting and Tracking System, beta edition, is a web-based prototype application for near real-time global land use and land cover change detection (http://planetaryskin.org/rd-programs/resource-nexus/global-land-change-detection).		
Type	Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy, Urban Planning & Transport		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			

Addresses (Trend)	Smart City / Smart Government
Serves (Need)	Ensure availability of (real-time) information and knowledge

I.2 Databases / Data sources

ESPON Database for policy makers			
Description (& Link)	Database providing comparable indicators covering all regions of Europe. The ESPON 2013 Database provides fundamental regional information provided by ESPON projects and EUROSTAT. This information can be used to support territorial development analysis at different geographical levels. The Database supports better understanding of past and future trends in different types of European territories and makes possible to benchmark your region and city in the European context. Ultimately, it aims at contributing to a better understanding of the potentials and development perspectives of regions in the European context and globalised world. It provides access to regional, local, urban, neighborhood, world, grid and historical data. Most of the datasets and information produced are public available and freely accessible. Users can focus their search using the categories "Theme", "Policy", "Project" and "Keyword" (http://database.espon.eu/db2/).		
Type	Database		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Improve and strengthen Europeanisation Ensure availability of (real-time) information and knowledge		

European Data Portal	
Description (& Link)	The European Data Portal harvests the metadata of Public Sector Information available on public data portals across European countries. Information regarding the provision of data and the benefits of re-using data is also

	included (https://www.europeandataportal.eu/).		
Type	Portal/Database		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	All		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge Comprehensive knowledge and information management		

The CIARD Routemap to Information Nodes and Gateways (RING)			
Description (& Link)	The RING is a global directory of datasets and data services for the agri-food sector. It is the principal tool created through the CIARD initiative to allow information providers to register their services and datasets in various categories and so facilitate the discovery of sources of agriculture-related information across the world (http://ring.ciard.net/about-ring).		
Type	Database		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Agriculture, Fisheries, Forestry and Foods		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

RASFF Database	
Description (& Link)	The RASFF (Rapid Alert System for Food and Feed) portal features an interactive searchable online database. It gives public access to summary information about the most recently transmitted RASFF notifications as well as the ability to search for information on any notification issued in the past

	(https://webgate.ec.europa.eu/rasff-window/portal/).		
Type	Database		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Agriculture, Fisheries, Forestry and Foods		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

EU Open Data Portal			
Description (& Link)	Employment and working conditions (https://data.europa.eu).		
Type	Data Source		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Employment & Social Security		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge Include scientific knowledge and expertise		

eu.us.opendata	
Description (& Link)	The United States Department of Commerce and the Bureau of Economic Analysis in partnership with the European Commission's DG CONNECT and Eurostat have established a Transatlantic Open Data Partnership focused on economic data. The eu.us.opendata R library is the direct result of this collaborative effort, enabling easy access to comparable datasets from the Eurostat API and BEA API. Built following a Linked Open Data design, the R library taps into the Bureau of Economic Analysis' API and the Eurostat

	API to make comparable data accessible. In only a few lines of code, a data analyst can obtain economic data (https://www.bea.gov/developers/r-index.htm).		
Type	Data source (Methodological)		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Economy & Finance		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Include scientific knowledge and expertise		

I.3 Guides / Manuals

Open policy making toolkit			
Description (& Link)	Manual that includes information about Open Policy Making as well as the tools and techniques policy makers can use to create more open and user led policy (http://database.espon.eu/db2/).		
Type	Manual/Guide		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge Comprehensive knowledge and information management		

I.4 Frameworks / Methods / Models

Digital Policy Model Canvas			
Description (& Link)	A tool to guide policy makers to derive specific policies and regulatory mechanisms in an agile and iterative manner – integrating both design thinking and evidence - based policy making. This notion of a canvas is borrowed from the business world. The canvas approach helps translate broad insights and understandings to the needs of a particular country. It also helps define the key issues at stake as well as metrics to evaluate success and suggest avenues for possible iteration and improvement. Overall, such an approach provides an element of rigor in methodology that can help guide policymakers through the often confusing and contradictory universe of digital policymaking. It offers structure with flexibility, and a broad approach informed by global lessons with the ability to focus on a specific region (http://thegovlab.org/introducing-the-digital-policy-model-canvas/).		
Type	Method		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Performance Measurement		
Serves (Need)	Comprehensive knowledge and information management Coherent use of digital technology across policy areas		

GLEAM	
Description (& Link)	GLEAM, the global epidemic and mobility model, combines real-world data on populations and human mobility with elaborate stochastic models of disease transmission to deliver analytic and forecasting power to address the challenges faced in developing intervention strategies that minimise the impact of potentially devastating epidemics (http://www.gleamviz.org/).
Type	Model
Origin	Research domain
Policy Cycle Stage (s)	Policy Design and Analysis

Policy Domain (s)	Health		
TRL	5	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Ensure availability of (real-time) information and knowledge Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

Economic Simulation Library			
Description (& Link)	Economic Simulation Library is a community driven, open-source project to develop a user-friendly modelling library for building agent-based models of economic systems (https://economicsl.github.io/overview/).		
Type	Model		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Economy & Finance		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

Energy Big Data: A Survey	
Description (& Link)	IEEE Model for planning Big Data Energy Applications through a Smart Grid (including Use Case Scenarios), (https://folk.uio.no/yanzhang/IEEEAccessAug2016.pdf).
Type	Model (methodological)
Origin	Public Sector
Policy Cycle Stage (s)	Policy Design and Analysis
Policy Domain (s)	Environment & Energy

TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

Modernization Defence Intelligence			
Description (& Link)	DIA Concept of how to structure the information Organisation in a OOB Model (https://www.ncsi.com/diaid/2013/presentations/johnston.pdf).		
Type	Model		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Foreign Affairs and Defence		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Big Data		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

Promises and Challenges of Big Data Computing in Health Sciences	
Description (& Link)	An impressive study concerning Big Data and how to transfer the concept to the Health Science: The concept of Big Data is causing a world-wide buzz. Its successful applications in business, sciences and healthcare have radically changed their traditional practices. The demand for Big Data analysis is increasing day by day. More than 200 colleges provide degrees with Data Science (https://ac.els-cdn.com/S2214579615000118/1-s2.0-S2214579615000118-main.pdf?_tid=spdf-bd074572-4c1a-4af0-a386-e65fda559b3f&acdnat=1519839451_fc079f2f8b3cf146f047c5eb90a77ef7).
Type	Model

Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Health		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Big Data		
Serves (Need)	Standardisation of data management Coherent use of digital technology across policy areas		

EDA			
Description (& Link)	EDA, the European Defence Analytics System, is a Modelling and Simulation Project for the WIP European defence strategy. It's a supranational solution for the EU members to intensify the military cooperation among the EU Member states (https://www.eda.europa.eu/webzine/issue14/cover-story/big-data-analytics-for-defence).		
Type	Model		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Foreign Affairs and Defence		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	Low	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Process and resource optimisation		

Fraunhofer E-Health	
Description (& Link)	A Complete Consultant Solution by Fraunhofer SIT, to create your own Health Infrastructure from scratch. (https://www.sit.fraunhofer.de/de/angebote/projekte/ehealth/)

Type	Framework		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Health		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Strengthen citizens' trust in public administration Continuous Evaluation of Policies		

InnOPlan			
Description (& Link)	A huge improvement through the system of interactive surgery thanks to the Innoplan Project (https://www.scads.de/de/projekt/kooperationen/307-innoplan).		
Type	Model		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Health		
TRL	4	**Implementation /Customisation Cost**	High
Ease of use	Low	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Big Data		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

BehavePlus	
Description (& Link)	The BehavePlus fire modelling system is a Windows® based computer program that can be used for any fire management application that involves modelling fire behaviour and some fire effects. The system is composed of a collection of mathematical models that describe fire behaviour and the fire environment. The program simulates rate of fire spread, spotting distance, scorch height, tree mortality, fuel moisture, wind adjustment factor, as well as

	other variables; so, it is used to predict fire behaviour in multiple situations (https://www.firelab.org/project/behaveplus).		
Type	Model		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Agriculture, Fisheries, Forestry and Foods		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Predictive Analytics		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation Cross-linked information exchange		

Edge Intelligence EI			
Description (& Link)	A Whitepaper from Fraunhofer FOKUS and several cooperation partners developed an ingenious future technology, for Improvement of the 5G Net-Infrastructure through networks which are capable to learn. Thanks to this it will be possible soon to provide a 5G Network without any latencies. In conclusion it means, that the cloud system will be obsolete for big companies faster or sooner. The Article explains the technology behind it and the possibilities (https://www.fokus.fraunhofer.de/de/fokus/news/edge-intelligence_10-2017).		
Type	Model		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Machine Learning		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

The public safety assessment			
Description (& Link)	The PSA produces a score that represents the likelihood that a defendant who is released before trial will commit a new crime or will fail to appear for a future court appearance. The PSA also flags the small number of defendants who pose an elevated risk of committing a crime of violence if released before trial (http://www.arnoldfoundation.org/wp-content/uploads/PSA-Infographic.pdf).		
Type	Model (metric)		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Justice, Legal System & Public Safety		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Algorithmic Regulation		
Serves (Need)	Standardisation of processes		

€CONOMIA - The Monetary Policy Game			
Description (& Link)	Serious Game on Monetary Policy Making (http://www.ecb.europa.eu/ecb/educational/educational-games/economia/html/index.en.html).		
Type	Framework (serious game)		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Economy & Finance		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Nudging		
Serves (Need)	Strengthen citizens' trust in public administration Link between impact, quality, performance measurements and financial information		

Thousand Visions			
Description (& Link)	Engage and educate stakeholders in a compelling and complicated set of trade-offs regarding future regional transportation projects (http://www.migtownsquare.com/app_pages/view/22).		
Type	Tool/ Serious Game		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Urban Planning & Transportation		
TRL	9	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Nudging		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration		

LEED			
Description (& Link)	LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world (https://new.usgbc.org/leed#rating).		
Type	Framework (rating system)		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Urban Planning and Transport, Environment & Energy		
TRL	9	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Performance Measurement		
Serves (Need)	Standardisation of processes Development of domain specific target and indicator systems		

SPLASH

Description (& Link)	Splash is a research project aimed at building a framework that supports the integration of multiple existing models, simulations, and data that represent parts of the broader health ecosystem. Specifically, the goal is to create a platform that takes expert models of constituent real-world systems related to health, synthesising and integrating those models, resulting in an interoperating complex composite system model with which policy-makers can try out alternatives in a low-cost, highly responsive way. The key research question is whether such integration of independently created, deep domain models can be made feasible, practical, flexible, cost-effective, attractive, and usable (http://www2.gsu.edu/~matrhc/documents/splashvision20100728.pdf).		
Type	Framework		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Health		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

Business Process Re-engineering (BPR)			
Description (& Link)	Business process re-engineering (BPR) is a business management strategy, originally pioneered in the early 1990s, focusing on the analysis and design of workflows and business processes within an organization. BPR aimed to help organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, and become world-class competitors.		
Type	Framework (Strategy)		
Origin	Private/Public Sector		
Policy Cycle Stage (s)	Agenda Setting		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	High
Ease of use	Low	**Open License Availability**	n/a

Mapping to Needs and Trends	
Addresses (Trend)	E-Governance
Serves (Need)	Process and resource optimisation

I.5 Platforms / Portals

EU Open Data Portal			
Description (& Link)	European Union Open Data Portal (EU ODP) gives you access to open data published by EU institutions and bodies. All the data you can find via this catalogue are free to use and reuse for commercial or non-commercial purposes. (https://ec.europa.eu/isa2/sites/isa/files/leaflet_dcat-ap_lr_v13.pdf).		
Type	Portal		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Evaluation		
Policy Domain (s)	Employment & Social Security		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

EtherSport: Blockchain Sports Prediction Platform	
Description (& Link)	EtherSport improves the service in this business field by new technologies, namely, blockchain, smart contracts and cryptocurrencies. Such improvement is directed not only to the convenience of the technical service for the players, but also to the guarantee of the fairness and full transparency of the process, which is done thanks to the new technologies. Based on this message, namely - convenience and comfort for the players, based on the confidence and fairness of the decentralised and fully open process, EtherSport team is sure that in such system and on our platform, the players will be comfortable with participating in the game and get satisfaction from the process itself, compared to the traditional companies that are working on the market in the generally accepted web limits. The main idea of our project is that our lottery,

	contrary to many similar services, is not based on guessing the random numbers, but involves exact determination of the sports events results, which cannot be influenced by anyone. This implies that the players have analytical skills. Such lottery type allows players not only to guess the game results by using their knowledge, but also get an additional satisfaction from the view of the sports events and support of their favourite teams, which they have chosen in the ticket. The same can be said about the bets placed between the players within our project, an analogue of the betting exchange (https://ethersport.io/).		
Type	Portal		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	*Education, Youth, Culture &* Sport		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Predictive Analytics		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making		

Creativechain			
Description (& Link)	Blockchain platform for multimedia registration and distribution that indelibly certifies the intellectual properties and their distribution licenses of digital art (https://www.creativechain.org/project/).		
Type	Portal		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	*Education, Youth,* Culture *& Sport*		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Privacy by Design		
Serves (Need)	Secure organisational framework		

	Process and resource optimisation

Europeana			
Description (& Link)	Europeana works with thousands of European archives, libraries and museums to share cultural heritage for enjoyment, education and research. Europeana Collections provides access to over 50 million digitised items - books, music, artworks and more - with sophisticated search and filter tools to help you find what you're looking for. The dedicated thematic collections on art, fashion, music, photography and World War I contain galleries, blogs and exhibitions to inform and inspire (https://www.europeana.eu/portal/en).		
Type	Portal		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	*Education*, *Youth*, Culture *& Sport*		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Cross-linked information exchange Ensure availability of (real-time) information and knowledge		

PETER SERVICE	
Description (& Link)	PETER Service (https://billing.ru/) is a Russian telecommunication Service, who saves civil meta telecommunication data from the Russian people and works very close with FSB and national security. This is interesting in so far, because it is extremely likely that many other international telecommunication services as Deutsche Telekom and Telefónica are doing the same for their countries or at least for all concerned Homeland Secret services where these companies operate (https://wikileaks.org/spyfiles/russia/document/SVC-BASE-COMMON-DOC_SVC-BASE-DOC-G3_RUS-17_0/page-1/#pagination).
Type	Platform
Origin	Public Sector
Policy Cycle Stage (s)	Policy Implementation

Policy Domain (s)	Foreign Affairs and Defence		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Cross-linked information exchange		

Virtuose DE			
Description (& Link)	A Cloud-based video platform to analyse traffic movements. The German part of the project by Fraunhofer HHS aims to develop low-complexity, real-time algorithms for analysis of large-scale visual data. In consideration of increasingly growing cities in European industrial countries it becomes more and more important that the traffic situation has to be optimised. The service tries to solve this issue by analysing data streams to discover free park spaces for instance (https://www.hhi.fraunhofer.de/en/departments/vca/projects/virtuose-de.html).		
Type	Platform		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Urban Planning & Transport		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Process and resource optimisation Ensure availability of (real-time) information and knowledge Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

MASAR	
Description (& Link)	Saudi Arabia, currently offers MASAR a real-time tracking system, to create more space between the streets of Mecca and Medina, the most holy cities of

	ISLAM (Shia and Suni) during the days of Hadji. For this reason, the house AL Saud has created a Smart city research centre for Crowd Control (one of the biggest of the world). The researchers developed MASAR a tracking platform for guests and citizens to help them by planning their root towards the Kaaba (http://tcmcore.net/platforms/masar).		
Type	Platform		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Urban Planning & Transport		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Process and resource optimisation Ensure availability of (real-time) information and knowledge Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

UrbanSim			
Description (& Link)	UrbanSim is a simulation platform for supporting planning and analysis of urban development, incorporating the interactions between land use, transportation, the economy, and the environment. UrbanSim leverages state-of-the-art urban simulation, 3D visualisation, and shared open data to empower users to explore, gain insights into, and develop and evaluate alternative plans to improve their communities (http://www.urbansim.com/).		
Type	Platform		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Urban Planning & Transport		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		

Serves (Need)	Cross-linked information exchange Forward-looking strategic planning for the use of data and technologies as well as for practical implementation Involvement of the public and citizens, as well as the development of citizen-centred policy-making

KNIME Analytics Platform			
Description (& Link)	UrbanSim is a simulation platform for supporting planning and analysis of urban development, incorporating the interactions between land use, transportation, the economy, and the environment. UrbanSim leverages state-of-the-art urban simulation, 3D visualisation, and shared open data to empower users to explore, gain insights into, and develop and evaluate alternative plans to improve their communities (http://www.urbansim.com/).		
Type	Platform		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Urban Planning & Transport		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Deeper understanding of IT potential and IT processes		

RapidMiner	
Description (& Link)	RapidMiner is an open source software platform for data science teams that unites data prep, machine learning, and predictive model deployment. It operates through visual programming and is capable of manipulating, analysing and modelling data. Its unified data science platform accelerates the building of complete analytical workflows – from data prep to machine learning to model validation to deployment – in a single environment, dramatically improving efficiency and shortening the time to value for data science projects (https://rapidminer.com/).
Type	Platform
Origin	Private Sector

Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Deeper understanding of IT potential and IT processes Establishment of a comprehensive technical infrastructure and IT architecture		

Pentaho			
Description (& Link)	Pentaho is a Unified Data Integration and Analytics Platform that addresses the barriers that block an organisation's ability to get value from all their data. The platform simplifies preparing and blending any data and includes a spectrum of tools to easily analyse, visualise, explore, report and predict. Open, embeddable and extensible, Pentaho is architected to ensure that each member of the team — from developers to business users — can easily translate data into value (http://www.pentaho.com/).		
Type	Platform		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	Low	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Coherent use of digital technology across policy areas Standardisation of data management		

SAHARA Smart analysis	
Description (& Link)	A medical smart analysis platform for health care (https://www.sahra-plattform.de/).

Type	Platform		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Health		
TRL	6	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Cross-linked information exchange Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

IBM Watson			
Description (& Link)	Watson is the AI platform for professionals (https://www.ibm.com/watson/about/index.html).		
Type	Platform		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	9	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Cross-linked information exchange Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

Employment Ontario Geo Hub	
Description (& Link)	Platform for exploring and downloading Employment Ontario open data (http://www.eo-geohub.com/).
Type	Platform/Data Source

Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Employment & Social Security		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge Improve the process of recruiting in order to acquire suitable staff in a timely manner		

GENIX			
Description (& Link)	GENIX is a huge software company and the official Partner of Australia's defence system to create a Big Data Solution for the Military of Australia. They are working closely together with the most renowned universities and science institutes, similar to Fraunhofer Society or Max-Planck-Society in (Germany/Europe), Sciences Po Paris in France (France/Europe) or Fraunhofer Society (international), (https://www.genixventures.com/).		
Type	Platform/Model/Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Foreign Affairs and Defence		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	Low	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Continuous Evaluation of Policies Development of domain specific target and indicator systems Process and resource optimisation		

SMART Energy Hub	
Description (& Link)	A research Project dealing with the question, of how to improve the Energy-

	Management in the public sector (http://smart-energy-hub.de/).		
Type	Platform		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	6	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Process and resource optimisation		

I.6 Software / Engines

NodeXL			
Description (& Link)	NodeXL is a data visualisation and analysis software of relationships and networks that provides exact calculations. It is a free (Basic package not the pro one) and open-source network analysis and visualisation software and one of the best statistical tools for data analysis which includes advanced network metrics, access to social media network data streams, sentiment analysis and automation (http://nodexl.codeplex.com/).		
Type	Software		
Origin	Research Domain		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Cloud Computing		
Serves (Need)	Cope with the production of huge volumes of data Deeper understanding of IT potential and IT processes		

LiquidFeedback

Description (& Link)	Open-source software, powering internet platforms for proposition development and decision making (http://liquidfeedback.org/).		
Type	Software		
Origin	Private sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Innovation, Science & Technology		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Forward-looking strategic planning for the use of data and technologies as well as for practical implementation Strengthen citizens' trust in public administration		

APACHE Spark			
Description (& Link)	Apache Spark™ is a unified analytics engine for large-scale data processing (https://spark.apache.org/).		
Type	Analytics Engine		
Origin	Private sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Deeper understanding of IT potential and IT processes		

Gephi	
Description (& Link)	Gephi is an open-source network analysis and visualisation software package

	written in Java on the NetBeans platform. It is a tool for exploring and understanding graphs that allows users to interact with the representation, manipulate the structures, shapes and colours to reveal hidden patterns. Its goal is to help data analysis to make hypothesis, intuitively reveal trends and patterns, highlight outliers and tell stories with their data. It uses a 3D render engine to display large graphs in real-time and to speed (https://gephi.org/).		
Type	Software package		
Origin	Non-profit sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Deeper understanding of IT potential and IT processes		

Solver BI360			
Description (& Link)	Solver specialises in providing world-class financial reporting, budgeting and analysis with push-button access to all data sources that drive company-wide profitability. Solver provides BI360, a Corporate Performance Management (CPM) software suite for companies of all sizes, which is available for cloud and on-premise deployment, focusing on four key analytics areas. (https://www.solverglobal.com/)		
Type	Software suite		
Origin	Private sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Economy & Finance		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Link between impact, quality, performance measurements and financial information		

	Standardisation of processes

DataMelt			
Description (& Link)	DataMelt or DMelt is a software for numeric computation, statistics, analysis of large data volumes ("big data") and scientific visualisation. The program can serve many areas, such as natural sciences, engineering, modelling and analysis of financial markets and (as it is a computational platform) it can be used with different programming languages on different operating systems (http://jwork.org/dmelt/).		
Type	Software		
Origin	Private sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Big Data		
Serves (Need)	Coherent use of digital technology across policy areas		

Weka			
Description (& Link)	Weka, an open source software, is a collection of machine learning algorithms for data mining tasks. The algorithms can either be applied directly to a data set or called from the user's own JAVA code (as Weka itself has been fully implemented in the JAVA programming language). Weka features include machine learning, data mining, pre-processing, classification, regression, clustering, association rules, attribute selection, experiments, workflow and visualisation (https://weka.wikispaces.com/).		
Type	Software		
Origin	Private sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes

Mapping to Needs and Trends	
Addresses (Trend)	Data Governance
Serves (Need)	Deeper understanding of IT potential and IT processes Establishment of a comprehensive technical infrastructure and IT architecture

OpenText			
Description (& Link)	The OpenText Sentiment Analysis module is a specialised classification engine used to identify and evaluate subjective patterns and expressions of sentiment within textual content. The analysis is performed at the topic, sentence, and document level and is configured to recognise whether portions of text are factual or subjective and, in the latter case, if the opinion expressed within these pieces of content are positive, negative, mixed, or neutral (https://www.opentext.com/).		
Type	Engine		
Origin	Private sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology, All		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Standardisation of processes		

Trackur	
Description (& Link)	Trackur's automated sentiment analysis looks at the specific keyword one is monitoring and then determines if the sentiment towards that keyword is positive, negative or neutral with the document. That's weighted the most in Trackur algorithm. It can be used to monitor all social media and mainstream news, to gain executive insights through trends, keyword discovery, automated sentiment analysis and influence scoring, (http://www.trackur.com/).
Type	Software

Origin	Private sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology, All		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Standardisation of processes		

I.7 Standards

Document, Discover and Interoperate			
Description (& Link)	The Data Documentation Initiative (DDI) is an international standard for describing the data produced by surveys and other observational methods in the social, behavioral, economic, and health sciences. DDI is a free standard that can document and manage different stages in the research data lifecycle, such as conceptualization, collection, processing, distribution, discovery, and archiving. Documenting data with DDI facilitates understanding, interpretation, and use (https://www.ddialliance.org).		
Type	Standard		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Deeper understanding of IT potential and IT processes		

Blockcerts: An open Standard for Blockchain educational certificates	
Description (& Link)	Blockcerts is an open standard for creating, issuing, viewing, and verifying

	blockchain-based certificates. These digital records are registered on a blockchain, cryptographically signed, tamper-proof, and shareable. The goal is to enable a wave of innovation that gives individuals the capacity to possess and share their own official records. The initial design and development was led by MIT's Media Lab and Learning Machine. For ongoing development, this open-source project actively encourages other collaborators to get involved. The goal of this community is to create technical resources that other developers can utilise in their own projects. Rather than independently developing custom implementations, the community works together to build an interoperable future (https://www.blockcerts.org/).			
Type	Standard			
Origin	Public and Private Sector			
Policy Cycle Stage (s)	Policy Implementation			
Policy Domain (s)	Education, Youth, Culture & Sport			
TRL	n/a	**Implementation /Customisation Cost**		n/a
Ease of use	Low	**Open License Availability**		n/a
Mapping to Needs and Trends				
Addresses (Trend)	Smart Work			
Serves (Need)	Cross-linked information exchange Establishment of a comprehensive technical infrastructure and IT architecture Coherent use of digital technology across policy areas			

Smart City Reference Architecture German Institute for Standardization			
Description (& Link)	Reference Architecture Model Open Urban Platform, (https://www.din.de/de/wdc-beuth:din21:281077528).		
Type	Standard		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			

Addresses (Trend)	Smart City / Smart Government
Serves (Need)	Standardisation of processes

FoodEx2			
Description (& Link)	Standardised food classification and description system consisting of descriptions of a large number of individual food items aggregated into food groups and broader food categories in a hierarchical parent-child relationship (http://www.efsa.europa.eu/en/data/data-standardisation).		
Type	Standard		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Agriculture, Fisheries, Forestry and Foods		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

ISO			
Description (& Link)	ISO is an independent, non-governmental international organization with a membership of 161 national standards bodies. Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market relevant International Standards that support innovation and provide solutions to global challenges (https://www.iso.org/about-us.html).		
Type	standard		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	All		
TRL	9	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Performance Measurement		

Serves (Need)	Standardisation of processes Development of domain specific target and indicator systems

ISO 27001			
Description (& Link)	ISO/IEC 27001 is an information security standard, part of the ISO/IEC 27000 family of standards, of which the last version was published in 2013, with a few minor updates since then. It is published by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) under the joint ISO and IEC subcommittee, ISO/IEC JTC 1/SC 27. ISO/IEC 27001 specifies a management system that is intended to bring information security under management control and gives specific requirements. Organisations that meet the requirements may be certified by an accredited certification body following successful completion of an audit (https://www.iso.org/isoiec-27001-information-security.html).		
Type	Standard		
Origin	Private Sector		
Policy Cycle Stage (s)	Agenda Setting		
Policy Domain (s)	Institutional Questions / Internal Affairs		
TRL	n/a	**Implementation /Customisation Cost**	High
Ease of use	n/a	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Security by Design, Data Governance		
Serves (Need)	Ensuring data security taking into account the protection of citizens' privacy, Standardisation of data management		

I.8 Tools

Risk Assessment and Horizon Scanning	
Description (& Link)	A strategic risk assessment and analysis tool, which aims to provide early alerts on potential threats to national security by developing a network that links various independent government agencies. Some of the latest technologies employed in the RAHS system allow for model-building, monitoring, weak signal detection and pattern analysis (https://www.nscs.gov.sg/public/content.aspx?sid=191).
Type	Tool

Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Foreign Issues & Defence		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Predictive Analytics		
Serves (Need)	Coherent use of digital technology across policy areas Cooperative working between decision-makers, departments, hierarchy levels (e.g. information exchange between different departments and administrations)		

Meieraha			
Description (& Link)	Esthonian Budget Visualisation Calculator (http://meieraha.ee/view/10).		
Type	Tool		
Origin	Public Sector		
Policy Cycle Stage (s)	Agenda Setting		
Policy Domain (s)	Economy & Finance		
TRL	9	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

The European Data Market Monitoring Tool	
Description (& Link)	Measures a set of indicators assessing the number of data workers in Europe, the value of data-related products and services, the number of data users and data supply companies, as well as the overall impact of the data economy on Europe's GDP (http://datalandscape.eu/european-data-market-monitoring-tool).
Type	Monitoring tool

Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Economy & Finance		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Performance Measurement		
Serves (Need)	Link between impact, quality, performance measurements and financial information		

Correctional Offender Management Profiling for Alternative Sanctions (COMPAS)			
Description (& Link)	Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) is a research-based, risk and needs assessment tool for criminal justice practitioners to assist them in the placement, supervision, and case management of offenders in community and secure settings. The COMPAS is an objective risk and needs assessment instrument (https://www.cdcr.ca.gov/rehabilitation/docs/FS_COMPAS_Final_4-15-09.pdf).		
Type	Tool		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Justice, Legal System & Public Safety		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Algorithmic Regulation		
Serves (Need)	Standardisation of processes		

OpenRefine	
Description (& Link)	OpenRefine (formerly Google Refine) is a powerful tool for working with

	messy data: cleaning it, transforming it from one format into another, and extending it with web services and external data. OpenRefine allows to explore large data sets with ease (http://openrefine.org/).		
Type	Tool		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	6	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Big Data		
Serves (Need)	Cope with the production of huge volumes of data Deeper understanding of IT potential and IT processes		

Datawrapper			
Description (& Link)	Datawrapper is an online data-visualisation tool for making interactive charts. Once the user uploads the data from CSV/PDF/Excel file or pastes it directly into the field, Datawrapper generates a bar, line, map or any other related visualisation. Datawrapper graphs can be embedded into any website or CMS with ready-to-use embed codes (https://www.datawrapper.de/).		
Type	Tool		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Cope with the production of huge volumes of data Deeper understanding of IT potential and IT processes		

Agora Voting			
Description (& Link)	Election management system (https://nvotes.com/agoravoting-com-redirect/).		
Type	Tool / System		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Institutional Questions/ Internal Affairs		
TRL	7	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Security by Design		
Serves (Need)	Strengthen citizens' trust in public administration		

D-CENT			
Description (& Link)	A federated architecture/toolbox enabling to choose and combine tools for democratic processes it includes: Collaborative policy making, Blockchain Reward scheme, Citizen priorities and budgeting, Citizens notifications, Citizens initiatives, Collective deliberation, Electronic Voting (http://tools.dcentproject.eu/).		
Type	Project/ Toolbox/ Federated Architecture		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Institutional Questions/ Internal Affairs		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration		

Orange

Description (& Link)	Orange enables open source data visualisation and data analysis for novice and expert. It provides a large toolbox to create interactive workflows to analyse and visualise data. Orange is packed with different visualisations, from scatter plots, bar charts, trees, to dendrograms, networks and heat maps (https://orange.biolab.si/).		
Type	Toolbox		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

BudgIt			
Description (& Link)	Budget visualisation (http://yourbudgit.com/).		
Type	Tool		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Economy and Finance / Institutional Questions		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

Qlik	
Description (& Link)	Qlik enables to create visualisations, dashboards, and apps that answer a

	company's most important questions (https://www.qlik.com/us/).		
Type	Tool		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Ensure availability of (real-time) information and knowledge Comprehensive knowledge and information management		

Tableau Public			
Description (& Link)	Tableau democratises visualisation in an elegantly simple and intuitive tool. It is exceptionally powerful in business because it communicates insights through data visualisation. In the analytics process, Tableau's visuals allow to quickly investigate a hypothesis, sanity check the latter, and just go explore the data before embarking on a treacherous statistical journey (https://www.tableau.com/).		
Type	Tool		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	7	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Ensure availability of (real-time) information and knowledge Comprehensive knowledge and information management		

Semantria

Description (& Link)	Semantria is a tool that offers a unique service approach by gathering texts, tweets, and other comments from clients and analysing them meticulously to derive actionable and highly valuable insights. Semantria offers text analysis via API and Excel plugin, incorporates a big knowledge base and uses deep learning (https://www.lexalytics.com/semantria).		
Type	Tool		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Ensure availability of (real-time) information and knowledge Comprehensive knowledge and information management		

Infogram			
Description (& Link)	Infogram offers over 35 interactive charts and more than 500 maps to help visualise data beautifully. It enables users to create a variety of charts including column, bar, pie, or word cloud or even add a map to their infographics or reports to impress their audience (https://infogram.com/).		
Type	Tool		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	8	**Implementation /Customisation Cost**	High
Ease of use	High	**Open License Availability**	No
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

3D City Model			
Description (& Link)	The City of Adelaide has created a digital 3D City Model that is helping visualise the City's future, particularly in relation to growth scenarios and land use planning (https://www.cityofadelaide.com.au/planning-development/building-renovating/3d-city-model/).		
Type	Tool		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Urban Planning & Transport		
TRL	9	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

EVOKE			
Description (& Link)	The goal of the social network game is to help empower people all over the world to come up with creative solutions to our most urgent social problems (http://www.urgentevoke.com/).		
Type	Tool (Serious Game)		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Institutional Questions / Internal Affairs		
TRL	9	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Socio-Technical Systems		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making		

Inflation Island			
Description (& Link)	Explore the different areas of Inflation Island, see how people react to inflation and deflation, and how the scenery changes. You can also test your knowledge and try to identify the different inflation scenarios (http://www.ecb.europa.eu/ecb/educational/educational-games/inflationisland/html/index.en.html).		
Type	Tool		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Economy & Finance		
TRL	8	**Implementation /Customisation Cost**	Low
Ease of use	High	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Nudging		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration		

I.9a Use cases

Nowcasting for economic policy and beyond			
Description (& Link)	Nowcasting is a forecasting methodology that is becoming increasingly popular in economics. The use case considers the potential use of Nowcasting in the context of economic policy setting and sets the potential value of an extended use of Nowcasting against different contexts. (http://media.wix.com/ugd/c04ef4_83de2898b6bf4fe091d2d0ab7105821b.pdf)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Economy & Finance		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			

Addresses (Trend)	Nudging
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation

Using learning analytics systems for educational policies			
Description (& Link)	This case focuses on the opportunity that micro - data on learning processes (e.g. within universities) and the use of learning analytics provide for the design of educational strategies by policy makers at a national and European level (http://media.wix.com).		
Type	Software		
Origin	Private sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology, Education, Youth, Culture & Sport		
TRL	7	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Cloud Computing		
Serves (Need)	Coherent use of digital technology across policy areas		

Text and opinion mining for policy making			
Description (& Link)	This use case covers the methods that can assist policymakers throughout all stages of the policy cycle. It explains the sources for these data and how the outputs can be used to gain understanding of stakeholders' and citizen's opinions on policies and strategies. (http://media.wix.com/ugd/c04ef4_83de2898b6bf4fe091d2d0ab7105821b.pdf)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	All		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			

Addresses (Trend)	E-Governance
Serves (Need)	Deeper understanding of IT potential and IT processes

Smart Fire Department			
Description (& Link)	Tracking Behaviour, Enhanced Situational Awareness, Sensor-driven Decision Analytics, Process Optimisation, Optimised Resource Consumption, Complex Autonomous Systems. (http://ojs.imodev.org/index.php/RIDDN/article/download/178/289)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Justice, Legal System & Public Safety		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart Work		
Serves (Need)	Process and resource optimisation Coherent use of digital technology across policy areas		

Smart Construction Administration			
Description (& Link)	Sensors perfect the transport infrastructures by reporting automatically about its utilisation and current condition. Sensor-generated information about the stress on roads, tracks, canals, bridges and tunnels helps civil engineering authorities to better estimate the condition of the infrastructure. They recognise and repair damages in the transport infrastructure in order to ensure an optimal traffic flow. This is supplemented by indications from citizens via apps. Strong vibrations registered by smartphones during car trips simplify the early identification and removal of road damages. (http://ieeexplore.ieee.org/document/7781917/)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Urban Planning & Transport		
TRL	n/a	**Implementation /Customisation Cost**	n/a

Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

Lisbon City Hall - Participatory Budgeting			
Description (& Link)	Lisbon Participatory budgeting (here in after, Lx-PB) structure is designed in such a way that the public and the city council should work together. It also embraces ICT, that is, it uses the internet and SMS, encourages the people to take part – face-to-face as well as through online platform (https://www.lisboaparticipa.pt/). The face-to-face platform where the citizens of Lisbon could take part in budgeting process is known as Participatory Assemblies (PAs, here in after). Often, several PAs take place during Spring and Autumn time period. PAs allow the participants to propose new proposals, present to the audience and discuss. Comments and inputs from the participants will be included into the proposal. Nevertheless, where in PAs a person can submit two proposals, an online portal can only accept one proposal. The rationale behind is to encouraged citizens to meet and deliberate on their proposals face-to-face. Besides, it sparks "contest of ideas" (Dias, 2010) among proposers and the latter also invite citizens to vote on the proposal. (https://participedia.net/en/cases/ten-years-lisbon-participatory-budgeting-portugal)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Agenda Setting		
Policy Domain (s)	Economy & Finance		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration Continuous Evaluation of Policies		

Madrid Participa			
Description (& Link)	Dynamic and continuous dialogue between political representatives and citizens. (https://participedia.net/en/cases/ten-years-lisbon-participatory-budgeting-portugal)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Agenda Setting		
Policy Domain (s)	Institutional Questions / Internal Affairs		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration Continuous Evaluation of Policies Strengthen citizens' trust in public administration Continuous Evaluation of Policies		

Maryland Budget Game			
Description (& Link)	The Maryland Budget Game allows users to develop their own proposals for balancing the state budget. The game presents different budget options in a range of policy areas, along with background information and factors to consider. (http://www.participatedb.com/tools/115)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Agenda Setting		
Policy Domain (s)	Economy & Finance		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			

Addresses (Trend)	Nudging
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration Continuous Evaluation of Policies

Modelling the Early life-course (MELC)			
Description (& Link)	The aim of the project is to construct a computer-based simulation model as a decision-support tool for policy-making in the early life course. This entails building a model with micro-level data derived from existing longitudinal studies to quantify, for policy purposes, the underlying drivers and determinants of progress in the early life course. (https://researchspace.auckland.ac.nz/handle/2292/27653)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Deeper understanding of IT potential and IT processes Coherent use of digital technology across policy areas		

OpenGov.gr	
Description (& Link)	Opengov.gr has been designed to serve the principles of transparency, deliberation, collaboration and accountability and includes three initiatives: Open calls for the recruitment of public administration officials; Electronic deliberation; Labs OpenGov. (http://opengov.gr/)
Type	Use Case
Origin	Public Sector
Policy Cycle Stage (s)	Policy Monitoring and Evaluation
Policy Domain (s)	Institutional Questions / Internal Affairs

TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Strengthen citizens' trust in public administration Ensure availability of (real-time) information and knowledge		

Opinion Space			
Description (& Link)	Expressing and visualising opinions on policies. (https://opinion.berkeley.edu/)		
Type	Use Case / Tool		
Origin	Public Sector		
Policy Cycle Stage (s)	Agenda Setting		
Policy Domain (s)	Institutional Questions / Internal Affairs		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

energie atlas			
Description (& Link)	Information to the citizens and companies of the State of Bavaria in Germany in the domain of energy sources, including renewable energy. (https://www.energieatlas.bayern.de/)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			

Addresses (Trend)	Performance Measurement
Serves (Need)	Strengthen citizens' trust in public administration Ensure availability of (real-time) information and knowledge

2050 Pathways Web Tool			
Description (& Link)	Exploring how the UK can meet the 2050 emission reduction target using the web-based 2050 Calculator. (https://www.gov.uk/guidance/2050-pathways-analysis)		
Type	Use Case / Tool		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

A systematic quantitative backcasting on low-carbon society policy in case of Kyoto city			
Description (& Link)	Based on the concept of backcasting, this paper proposes a methodology and a model, called the backcasting model (BCM), that organises a system of various LCS options and projects their detailed schedule toward a given target year. The methodology and model mainly focus on describing a complex system of LCS options and the consistency of their schedule. (http://www.sciencedirect.com/science/article/pii/S0040162511000059)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			

Addresses (Trend)	E-Governance
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation

African Highland Farmer – the Game			
Description (& Link)	Creating awareness among decision makers on land degradation and sustainable land management. (https://ypard.net/sites/ypard.net/files/Machteld.%20A.%20Schoolenberg.pdf)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Agenda Setting		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Evidence-based policy		
Serves (Need)	Ensure availability of (real-time) information and knowledge Development of domain specific target and indicator systems		

Crowdsourcing Through Social Media-The Icelandic Constitution Case			
Description (& Link)	The Icelandic Constitutional Council has made it possible for the public to send messages which are published on the Council's website in order to foster a lively discussion. Thereby every citizen had the opportunity to take part to the drafting of the constitution. (http://www.crossover-project.eu/Details.aspx?EntityId=438)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and analysis		
Policy Domain (s)	Institutional Questions / Internal Affairs		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		

Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration

DEMOS Plan			
Description (& Link)	Interactive land use planning. (http://demos-plan.eu/)		
Type	Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and analysis		
Policy Domain (s)	Urban Planning & Transport		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

Enquete-Kommission "Internet und digitale Gesellschaft"			
Description (& Link)	Collaborative text, discourse, delegation and coordination tool designed for constructive collaboration and decision-making with many participants. (https://enquetebeteiligung.de/)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and analysis		
Policy Domain (s)	Institutional Questions / Internal Affairs		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Cross-linked information exchange Cooperative working between decision-makers, departments, hierarchy levels (e.g. information exchange between different departments and		

	administrations)

In the Air			
Description (& Link)	In the Air is a visualisation project which aims to make visible the microscopic and invisible agents of Madrid´s air (gases, particles, pollen, diseases, etc.), to see how they perform, react and interact with the rest of the city. (http://www.intheair.es/)		
Type	Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

Smart City - City Information Modelling Rotterdam			
Description (& Link)	The focus of this use case is developing and initial 3D city information model that brings together as many meaningful city information datasets that currently exist separately, in different formats and in different databases. (http://espresso.espresso-project.eu/espresso-pilots/tartu/use-case-2-city-information-modelling/)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

KDI Project for optimizing patient therapy			
Description (& Link)	Scientists started a project for collecting some clinical data. (http://www.klinische-datenintelligenz.de/startseite/)		
Type	Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Health		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Big Data		
Serves (Need)	Coherent use of digital technology across policy areas		

Watson Super Computer Project			
Description (& Link)	The Watson Super Computer project developed by IBM is the latest technology used by international organisations as the ISS as well as the US military forces. Is one of the best developed IT technology. Quantum Computer technology is often used as a decryption solution for several secret services all around the world, since the quantum technology is capable to crack every password within milliseconds due to its architecture. The QBits are capable to have 3 conditions (0,1, 0AND1). Thus, they are faster than every normal computer on earth a very useful for complex learning algorithms behind Big Data as neural networks and learning. (https://www.ibm.com/watson/)		
Type	Platform/Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Foreign Affairs and Defence		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		

Serves (Need)	Cope with the production of huge volumes of data Deeper understanding of IT potential and IT processes

SmartRegio			
Description (& Link)	Management Consultant for Smart Energy in rural regions. Provides statistics from social media platforms as well as individual data of little regions in terms of mobility, energy and so on. (https://smartregio.org/)		
Type	Platform/Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Include scientific knowledge and expertise Comprehensive knowledge and information management		

Google ECO Projects			
Description (& Link)	Google pursues several Big Data projects around the globe to support humans and nature as for instance the pollution sensors added to google cars to log the air pollution within metropoles and cities. (https://environment.google/projects/airview/). The latest perceptions are published in an environmental report. (https://storage.googleapis.com/gweb-environment.appspot.com/pdf/google-2017-environmental-report.pdf)		
Type	Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a

Mapping to Needs and Trends	
Addresses (Trend)	Internet of Things
Serves (Need)	Ensure availability of (real-time) information and knowledge

MAPR			
Description (& Link)	A Medical Data Solution for hospitals and governments. The MapR Platform can be used to quickly combine, organize, and analyze a variety of structured and unstructured data in a single platform for pervasive insights that are actionable. Use real-time and predictive data to manage and optimize patient flow, safety, and experience. (https://mapr.com/solutions/)		
Type	Platform/Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Health / Institutional Questions / Internal Affairs		
Policy Domain (s)	Health		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Cloud Computing		
Serves (Need)	Cope with the production of huge volumes of data Cross-linked information exchange		

Electronic Health Records			
Description (& Link)	The same as ID 108(KDI Project). A Medical Data Solution for hospitals and governments. They are primary using the software solution parts developed by Big Data International (https://www.bigdatainternational.com). (https://mapr.com/solutions/)		
Type	Use Case/Application		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Health		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	Low	**Open License Availability**	n/a

Mapping to Needs and Trends	
Addresses (Trend)	Cloud Computing
Serves (Need)	Ensure availability of (real-time) information and knowledge

Streetlights Solar System			
Description (& Link)	The Greenshine company has developed a Solar System for streetlights. According to Streetlights-solar renewable energy is enjoying a rising support from private organisations and individuals due to the gradual decline in its production cost. According to Bloomberg New Energy Finance, the price of building an offshore wind farm has fallen 22% in 2016, across Europe. From 2012 to 2016, the cost fell by almost 46%. At present, erecting turbines in the seabed costs an average $126 per megawatt-hour capacity compared to $155 per megawatt-hour price for new nuclear developments across Europe. (https://www.streetlights-solar.com/)		
Type	Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Lean Approach		
Serves (Need)	Coherent use of digital technology across policy areas Standardisation of data management		

Big data analytics: The case of the social security administration	
Description (& Link)	Public agencies are investing significant resources in big data analytics to mine valuable information, predict future outcomes, and make data-driven decisions. In order to foster a strong understanding of the opportunities and challenges associated with the adoption of big data analytics in the public sphere, we analyse various efforts undertaken by the United States Social Security Administration (SSA). (https://www.scopus.com/record/display.uri?eid=2-s2.0-84919448428&origin=inward&txGid=20711044614a40f92e5e8c2829f1bf5e)
Type	Use Case

Origin	Public Sector		
Policy Cycle Stage (s)	All		
Policy Domain (s)	Innovation, Science & Technology / Employment & Social Security		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Deeper understanding of IT potential and IT processes		

Qlik			
Description (& Link)	Qlik helps the world's largest insurance and financial organisations detect fraud through improved analytics. Strengthening fraud detection through analytics is a major initiative for the Social Security Administration—one that's heavily powered by discovery of the unexpected. While many analytical tools exist to generate predictive models and visualisations, most fall short in enabling non-technical business users (fraud analysts, investigators, security and policy advisors, etc.) to navigate their data. With Qlik, organisations can quickly search and interrogate data from all systems – allowing everyone within SSA to easily navigate their data and create interactive visualisations and sophisticated analysis made easy. (https://www.qlik.com/us/resource-library/social-security-administration)		
Type	Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Employment & Social Security		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Link between impact, quality, performance measurements and financial information Development of domain specific target and indicator systems		

e- Social Security Interoperability Platform

Description (& Link)	The Slovenian government decided to implement the "Interoperable Data Gathering for e-Social Security" in 2010 following the "National Strategy on Electronic Services Development and Electronic Data Exchange" launched in 2009. The Slovenian government decided to implement the "Interoperable Data Gathering for e-Social Security" with the aim of reducing the efforts by applicants but also to simplify the decision process in relation to the allocation of different social security measures. The system is composed of 4 flexible and reusable building blocks and it has been developed in cooperation with several public and private stakeholders. The system can be defined as an Open eGovernment Service. (http://workspace.unpan.org/sites/internet/documents/UNPAN90166.pdf)		
Type	Use Case		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Employment & Social Security		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation Take into account local and regional specificities		

SAKE Semantical analysation of complex events			
Description (& Link)	A Platform for the integration of big data streams with the support of machine learning (https://www.sake-projekt.de/start/)		
Type	Use Case		
Origin	Private Sector		
Policy Cycle Stage (s)	All		
Policy Domain (s)	Innovation, Science & Technology		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			

Addresses (Trend)	Machine Learning
Serves (Need)	Cope with the production of huge volumes of data

Interoperability Centre			
Description (& Link)	The Interoperability Centre of the Greek Ministry of Finance is an information system, developed by the General Secretariat of Information Systems, aiming at the interconnection of Public Administration electronic services. The Interoperability Center provides a unified infrastructure for the installation and use of online services through which operational data is exchanged between the Ministry of Finance and other public bodies (http://www.gsis.gr/gsis/info/gsis_site/Services/DimosiaDioikisi/ked).		
Type	Use case		
Origin	Public Sector		
Policy Cycle Stage (s)	Agenda Setting		
Policy Domain (s)	All		
TRL	9	**Implementation /Customisation Cost**	Medium
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Establishment of a comprehensive technical infrastructure and IT architecture		

Military Simulation Big Data Background, State of the Art and Challenges			
Description (& Link)	Use Cases and Explanation of Big Data in the defence Industry (https://www.hindawi.com/journals/mpe/2015/298356/).		
Type	Use case		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Foreign Affairs and Defence		
TRL	3	**Implementation /Customisation Cost**	Low
Ease of use	Low	**Open License Availability**	Yes
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as		

	well as for practical implementation

I.9b Best practices

Troubled family program			
Description (& Link)	The English government is committed to working with local authorities and their partners to help 120,000 troubled families in England turn their lives around by 2015. The family monitoring data was collected by Ecorys as part of the national evaluation of the programme. Please read the Ecorys interim report on family monitoring data for more detail and additional results. (https://www.gov.uk/government/news/troubled-families-programme-turning-117000-lives-around)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Employment & Social Security		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Evidence-based policy		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

X-Road			
Description (& Link)	Different organisations and information systems must be interoperable, or in other words able to work together so that data only needs to be requested from the citizen once. Estonia's solution for maintaining a modern state is X-Road, which saves Estonians 800 years of working time every year. (https://e-estonia.com/it-sector/)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	n/a

Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Cross-linked information exchange		

Fix My Street			
Description (& Link)	Civic participation that allows the active involvement of citizens in managing their street or neighbourhood. (https://www.fixmystreet.com/)		
Type	Best Practice		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Urban Planning & Transport		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration		

Global Pulse	
Description (& Link)	Global Pulse is an innovation initiative of the UN Secretary-General, harnessing today's new world of digital data and real-time analytics to gain a better understanding of changes in human well-being. Global Pulse hopes to contribute a future in which access to better information sooner makes it possible to keep international development on track, protect the world's most vulnerable populations, and strengthen resilience to global shocks. (https://www.unglobalpulse.org/)
Type	Best Practice
Origin	Public Sector
Policy Cycle Stage (s)	Policy Design and Analysis
Policy Domain (s)	All

TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Predictive Analytics		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

GovTrack			
Description (& Link)	Easily track the activities of the United States Congress. (https://www.govtrack.us/)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge Strengthen citizens' trust in public administration		

Ideas for Bristol			
Description (& Link)	Ideas for Bristol was a crowdsourcing website that was developed to engage and involve the city's residents in the redevelopment of the city centre. (https://www.nesta.org.uk/ideas-bristol-adaptive-lab-and-bristol-city-council)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Urban Planning and Transport		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			

Addresses (Trend)	Smart City / Smart Government
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration

It's Your Parliament			
Description (& Link)	This website gives you a unique overview of the votes cast in the European Parliament. You can easily find and compare voting records of members of the European Parliament (MEPs) and political groups and you can make your own comments and cast your own votes. (http://www.itsyourparliament.eu/)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Implementation		
Policy Domain (s)	All		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge Secure legal framework Strengthen citizens' trust in public administration		

Integrated Planning and Management of land resources			
Description (& Link)	Integrated Planning and Management of land resources. (http://www.un.org/documents/ecosoc/cn17/2000/ecn172000-6.htm)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Urban Planning & Transport		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			

Addresses (Trend)	Next Generation of BI and Data Analytics platforms
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation

Polish E-Consultations			
Description (& Link)	Legislative editor, with legislative workflow management, that enables user/clerk to write law drafts and other documents and WWW portal that enables to gather views and opinions directly linked to smallest defined editorial unit (i.e. paragraph, article), no matter the stage. (http://konsultacje.gov.pl/)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Justice, Legal System & Public Safety		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	E-Governance		
Serves (Need)	Standardisation of processes		

POPVOX			
Description (& Link)	Popvox is a non-partisan advocacy platform that aims to improve communication between US Congress, and trade and union organisations, as well as the general public on specific pieces of legislation. (https://www.popvox.com/)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Justice, Legal System & Public Safety / Public Affairs		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		

Serves (Need)	Cross-linked information exchange Cooperative working between decision-makers, departments, hierarchy levels (e.g. information exchange between different departments and administrations)

Regulations.gov			
Description (& Link)	Through this portal comments on proposed regulations and related documents published by the U.S. Federal government can be submitted. In addition, this site can be used to search and review original regulatory documents as well as comments submitted by others. (https://www.regulations.gov/)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Monitoring and Evaluation		
Policy Domain (s)	Justice, Legal System & Public Safety		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration		

SeeClickFix	
Description (& Link)	An interactive website that enables users to report non-emergency issues in their communities, such as broken street lights, needed crosswalks, potholes, graffiti, and trees that need trimming. The site notifies local officials and plots of issues to be discussed on Google maps. Community and local government responses are reported and tracked by users. Especially for Washington DC 311, an iPhone and Facebook combination application has been developed and enables users to report physical problems by taking photographs. (https://seeclickfix.com/)
Type	Best Practice
Origin	Private Sector
Policy Cycle Stage (s)	Policy Implementation

Policy Domain (s)	Urban Planning & Transport		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Strengthen citizens' trust in public administration Ensure availability of (real-time) information and knowledge		

Technology Horizon Scanning			
Description (& Link)	"Anticipate, identify, and prepare for beyond-the-horizon advancements. As a result, United States Department of Defense can more robustly inform strategic thinking, planning, and research efforts to mitigate technological surprise." (https://www.recordedfuture.com/assets/tech-horiz-case-study.pdf)		
Type	Best Practice		
Origin	Private Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Innovation, Science & Technology		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

Social Simulator	
Description (& Link)	Using the language, tools and norms of the social web for social media PR and crisis response. (https://socialsimulator.com/)
Type	Best Practice
Origin	Private Sector
Policy Cycle Stage (s)	Policy Implementation
Policy Domain (s)	Justice, Legal System & Public Safety

TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Social Media		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

Vancouver User Voice			
Description (& Link)	The city of Vancouver used a feedback-gathering web-based software to solicit ideas, votes and comments (a process called "ideation") on how to make the city more environmentally responsible. (https://vancouver.uservoice.com/forums/56390-gc-2020)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration		

Improve the Neighborhood			
Description (& Link)	Improve your neighbourhood. (https://www.verbeterdebuurt.nl/)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Implementation		
Policy Domain (s)	Urban Planning & Transport		
TRL	n/a	**Implementation /Customisation Cost**	n/a

Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Involvement of the public and citizens, as well as the development of citizen-centred policy-making Strengthen citizens' trust in public administration		

Energy Planning Vienna			
Description (& Link)	Smart and integrated energy planning system. (https://www.wien.gv.at/wienatshop)		
Type	Best Practice		
Origin	Public Sector		
Policy Cycle Stage (s)	Policy Design and Analysis		
Policy Domain (s)	Environment & Energy		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Smart City / Smart Government		
Serves (Need)	Forward-looking strategic planning for the use of data and technologies as well as for practical implementation		

I.10 Vocabularies

Agrovoc	
Description (& Link)	AGROVOC is a controlled vocabulary covering all areas of interest of the Food and Agriculture Organization (FAO) of the United Nations, including food, nutrition, agriculture, fisheries, forestry, environment etc. It is published by FAO and edited by a community of experts. (http://artemide.art.uniroma2.it:8081/agrovoc/agrovoc/en/)
Type	Vocabulary
Origin	Public Sector
Policy Cycle Stage (s)	All

Policy Domain (s)	Agriculture, Fisheries, Forestry and Foods		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

OECD Taxonomy of Economic Activities Based on R&D Intensity			
Description (& Link)	New taxonomy of industries according to their level of R&D intensity - the ratio of R&D to value added within an industry. Manufacturing and non-manufacturing activities are clustered into five groups (high, medium-high, medium, medium-low, and low R&D intensity industries), drawing on new and expanded evidence from most OECD countries and some partner economies. (https://www.oecd-ilibrary.org/science-and-technology/oecd-taxonomy-of-economic-activities-based-on-r-d-intensity_5jlv73sqqp8r-en)		
Type	Vocabulary		
Origin	Public Sector		
Policy Cycle Stage (s)	All		
Policy Domain (s)	Economy & Finance		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Open Data		
Serves (Need)	Ensure availability of (real-time) information and knowledge		

Copernicus Marine environment monitoring service	
Description (& Link)	Marine data is an engine for "smart and sustainable growth" in the European Union, as stated in the recent Marine Knowledge 2020 EC Communication. The Copernicus Marine Service has been designed to respond to issues emerging in the environmental, business and scientific sectors. Using information from both satellite and in situ observations, it provides state-of-the-art analyses and forecasts daily, which offer an unprecedented capability

	to observe, understand and anticipate marine environment events. (http://marine.copernicus.eu/about-us/about-your-copernicus-marine-service/)		
Type	Vocabulary		
Origin	Public Sector		
Policy Cycle Stage (s)	All		
Policy Domain (s)	Innovation, Science & Technology		
TRL	n/a	**Implementation /Customisation Cost**	n/a
Ease of use	High	**Open License Availability**	n/a
Mapping to Needs and Trends			
Addresses (Trend)	Next Generation of BI and Data Analytics platforms		
Serves (Need)	Deeper understanding of IT potential and IT processes		

Annex II: IT Experts' Interview Guidelines

Introductory Questions

1. Can you briefly describe your profile, i.e. your occupation (in the public or private sector), the field(s) of expertise, your interest in ICT and the policy making process, etc.?

The interviewer should note down as much information as possible with regard to the respondent, in order to be able to provide adequate profiling information, when reporting the respective activities.

Main Questions

2. Please name at least three technological assets that are already being used or could be used to advance the policy making process in the public sector.
   These assets could be
   - specific technologies,
   - applications / tools,
   - data sources,
   - code lists / ontologies / taxonomies / vocabularies,
   - methodologies / models
   - platforms / portals,
   - standards,
   - or other solutions,

   currently used in the public or the private sector.

Identified Assets	Origin
Asset No 1	
Asset No 2	
Asset No 3	
…	

The interviewer should note down all technological assets, mentioned by the respondent, as well as the origin (public/private sector) of each.

3. How do these assets relate to the policy making cycle? Please indicate the specific phases of the policy making cycle, in which the identified assets are or could be employed, as well as the scope of their use and any particular use cases you may be aware of.

Identified Assets	Agenda Setting phase	Policy Design & Analysis phase	Policy Implementation phase	Policy Monitoring & Evaluation phase

Asset No 1	√ (scope… Use case…)			
Asset No 2				
Asset No 3				
…				

The interviewer should tick the specific phases of the policy making cycle, in which the identified assets are or could be employed, as indicated by the respondent. The interviewer should further take notes of the specific use cases, proposed by the respondent.

4. How do these assets relate to the different policy domains? Please indicate the specific domains, in which the identified assets are or could be employed, as well as the scope of their use and any particular use cases you may be aware of. You may as well suggest additional policy domains.

Identified Assets	Agriculture, Fisheries, Forestry & Foods	Economy & Finance	Education, Youth, Culture & Sport	Employment & Social Security	Environment & Energy	Health	Institutional Questions / Internal Services	Foreign Issues & Defence	Justice, Legal System & Public Safety	Public Affairs	Innovation, Science & Technology	Urban Planning & Transport	Other
Asset No 1	√												
Asset No 2													
Asset No 3													
…													

The interviewer should present to the respondent the list of BPC identified policy domains and tick the specific policy domains, in which the identified assets are or could be employed, as indicated by the latter. The interviewer should further take notes of the specific use cases, proposed by the respondent.

5. How feasible do you consider the adoption of each of these assets in the policy making cycle? Please comment on the factors of
   - the technology readiness level of each asset (low / medium / high),
   - the cost incurred with respect to the asset's implementation / customisation (low / medium / high),
   - its ease of use (low / high)
   - the availability of an open license (yes / no)

   using the appropriate linguistic scale.

Identified Assets	Technology Readiness Level	Acquisition/ Implementation/ Customisation Cost	Ease of Use	Open License Availability
Asset No 1				
Asset No 2				
Asset No 3				
…				

The interviewer should inform the respondent about the evaluation scale for each factor and record their assessment, as well as any additional comments provided for each asset.

6. Do you think that the identified assets could benefit from the exploitation of Big Data? Could you identify strengths, weaknesses, opportunities or threats, deriving from such a case?

Identified Assets	Benefit from the exploitation of Big Data? (yes/no)	Strengths	Weaknesses	Opportunities	Threats
Asset No 1					
Asset No 2					
Asset No 3					
…					

The interviewer should record the respondent's answers at the highest level of detail possible.

7. Can you think of any use cases that showcase the potential impact of Big Data technologies on the identified assets?

The interviewer should record the respondent's answers at the highest level of detail possible.