Cloud for Data-driven Policy Management

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Abbreviations and Acronyms

Abbreviation/Acronym	Definition
AI	Artificial Intelligence
BDVA	Big Data Value Association
CERIF	Common European Research Information Format
CRS	Common Reporting Standard
EBDVF	European Big Data Value Forum

EC	European Commission
EC DGA	European Commission – Data Governance Act
CEN	European Committee for Standardization
EUOS	European Observatory for ICT Standardization
EOSC	European Open Science Cloud
EOSC DIH	European Open Science Cloud Digital Innovation Hub
XACML	Extensible Access Control Markup Language
XML	Extensible Markup Language
GDPR	General Data Protection Regulation
GA	Grant Agreement
MAG	Gruppo Maggioli
H2020	Horizon 2020
ICT	Information Communication Technology
ICTLC	ICT Legal Consulting
ICB	Impact Creation Board
ICCS	Institute of Communication and Computers System
IEEE	Institute of Electrical and Electronics Engineers
IDSA	International Data Spaces Association
IoT	Internet of Things
CRS	Common Reporting Standard
JDBC	Java DataBase Connectivity
JSON	JavaScript Object Notation
JSON-LD	JavaScript Object Notation for Linked Data
MSP	Multi-Stakeholder Platform
NGO	Non-Governmental Organization
Open API	Open Application Programming Interface
OASC	Open & Agile Smart Cities
OS	Open Source
OSS	Open-Source Software
OECD	Organisation for Economic Co-operation and Development
OKS	OKYS
RDF	Resource Description Framework
SME	Small-Medium Enterprise
SDO	Standards Developing Organization
TWG	Technical Working Group
OWL	Web Ontology Language
WP	Work Package
W3C	World Wide Web Consortium

Contents

List of Figures

Executive Summary

In order to focus on standard-setting resources and communities, as proposed by the European Commission, Policy Cloud has paved the way to an analytics approach for standardisation of data interoperability in data driven policymaking, developing the "Cloud for Data Driven Policy Management" White Paper, with a collaborative effort aided by StandICT.eu 2023 project.

The white paper has been a central output of standardisation work carried out by Policy Cloud and provides a Landscape analysis of Data Driven Policymaking standardisation in the Context of EU policymaking in the ICT fields and recommendations for further activities.

The white paper has also been a central focal point for collaboration with both standardisation bodies and other EC-funded projects, and a key source for dialogue on standardisation to help define requirements and validate recommendations.

To ensure the white paper leaves a lasting legacy, Policy Cloud partners will be the recipient of consultancy services provided by the new EU Standardisation Booster service in 2023. This will match partners to standardisation experts who can guide them in understanding which Technical Committees and working groups from European and international standardisation bodies and National Standardisation Bodies could benefit from its landscape analysis and recommendations.

1 Introduction

This deliverable is the second standardisation report delivered in the project and follows on from D7.7 by providing an overview of activities that have taken place on the topic of standardisation as part of Task 7.4 Standardisation strategy and activities. A key goal of this task has been to to strengthen the cooperation with relevant EU-funded initiatives operating in the standardisation area, like StandICT.eu 2023, BDVA, IEEE and also contributing the European ICT standardisation. In doing this, a white paper was produced in November 2022 which makes up the main content of this deliverable. The paper highlights both the current landscape and the need for standards for data driven policy management and proposes a 3-dimensional end-to-end analysis which uses a novel Interim Repository to facilitate the ethical and legal analysis on the interoperable data.

The white paper is a key output of the standardisation activities and for this reason it is important to include it as part of this standardisation report. Written with the support of the StandICT project, it has since been shared with the StandICT Technical Working Groups as a key document for standardisation for cloud-based policy making. It has also been disseminated to the wider ICT standardisation community by Policy Cloud and StandICT.

The deliverable also provides an overview and analysis of European standardisation activities relevant to the Policy Cloud project, following the mapping of the relevant standardisation players in the standardisation ecosystem, and highlights Policy Cloud's contributions to standards and the Policy Cloud's collaborations with other relevant players for standardisation.

The white paper is also a key dissemination asset for the project and therefore links with other communication and dissemination activities reported in D7.14 Communication and Dissemination Strategy. It has also been the basis for the project's application to the European Commission's Standardisation Booster service (HSbooster.eu).

The document is organised in the following way:

Section 2 provides the White Paper, published in November 2022, in collaboration with StandICT.eu 2023

With the white paper the main output on standardisation, a number of support activities took place during the preparation of the paper. These are outlined in **section 3** and include requirements gathering, validation and post-publication dissemination with standardisation organisations and EC-funded projects.

To maximise the impact of the white paper, Policy Cloud applied for expert guidance from the EC's European Standardisation Booster. **Section 4** provides an overview of the application and the expected activities which will take place in early 2023 as part of the project's sustainability activities.

7

Section 5 provides conclusions on Policy Cloud's involvement in and contribution to ICT standards. As some activities will also follow in early 2023, it also includes the next steps, which will be reported on later in the project's final report.

2 Cloud for Data Driven Policy Management - the White Paper

"Policymaking has always revolved around the initiative to solve problems and since the start of more focused research on it, it contained many stages from problem identification and agenda setting to policy formulation, legitimization, implementation, and evaluation. As policymaking evolved and societal challenges became more complex, policymakers tried to include more factors into the decision-making process and thus data driven policymaking became an important tool in this field. Data driven policymaking aims to make optimal use of data and extensive analysis to create and evaluate policies.

The handling of data that is required has raised various legal and ethical issues that are hard to tackle on a case-to-case basis, without solid guidelines and standards. This need for standardisation in data driven policymaking is more crucial due to the heterogeneity of the modern data sources and the interoperability of data. Several standards have been developed around this notion and were examined in the scope of the H2020 Policy Cloud project.

To cover the project's needs, a 3-dimensional end-to-end analysis is proposed, which uses a novel Interim Repository to facilitate the ethical and legal analysis on the interoperable data. This approach tries to find the balance between legal/ethical compliance and registrability of analytics, a fine line that most policymaking services need to optimize. "
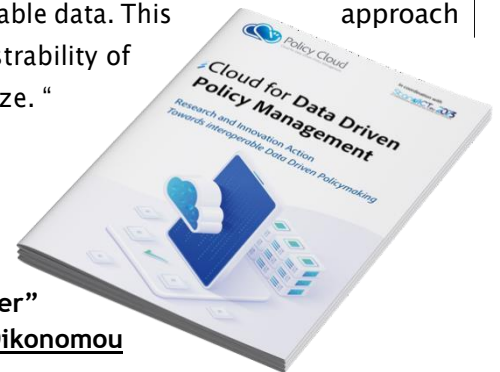
"The Cloud for Data Driven Policy Management - the White Paper"
Introduction by Konstantinos Oikonomou

The development of the white paper was a collaborative effort that was aided by StandICT.eu 2023, which is an EU H2020 Coordination and Support Action with the central goal of ensuring a neutral, reputable, pragmatic, and fair approach to support European and Associated states presence in the international ICT standardisation scene.

StandICT.eu 2023 organised the Technical Working Group (TWG) for this whitepaper, called Data Driven Policy (TWG DDP) under the supervision of Ray Walshe – StandICT.eu 2023 EUOS Chair

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2.1 Landscape analysis of Data Driven Policymaking

Among the main value propositions of the Policy Cloud environment and tools for policy development and management is its ability to integrate, link and unify the datasets from diverse sources, while at the same time enabling analytics over the unified datasets. As a key prerequisite to providing this added value, the interoperability of diverse datasets should be ensured. Currently, a wide array of data representation standards in various domains have emerged as a means of enabling data interoperability and data exchange between different systems. Prominent examples of such standards in different policy areas include:

» The INSPIRE Data Specifications [1] for the interoperability of spatial data sets and services, which specify common data models, code lists, map layers and additional metadata on the interoperability to be used when exchanging spatial datasets;

» The Health Level 7 (HL7) [2] electronic message format for the exchange of electronic health information, includes interfaces for accessing these data in a unified and interoperable manner;

» The Common European Research Information Format (CERIF) [3] for representing research information and supporting research policies;

» Data sharing agreement frameworks, such as the ISO/IEC 23751 [4] standard for cloud computing and distributed platforms;

» Internet of Things ontologies and schemas, such as the W3C Semantic Sensor Networks (SSN) ontology [5] and data schemas developed by the Open Geospatial Consortium (e.g., SensorML) [6] ;

» The Common Reporting Standard (CRS), developed in response to the G20 request and approved by the OECD Council on 15 July 2014, which specifies guidelines for obtaining information from financial institutions and automatically exchanging that information in an interoperable way;

» Standards-based ontologies appropriate for describing social relationships between individuals or groups, such as the Friend Of A Friend (FOAF) ontology [7] and the Socially Interconnected Online Communities (SIOC) ontology [8] . The latter are instrumental for analysing social media information.

These standards provide the means for common representation of domain-specific datasets, which provide the means for data interoperability (including in several cases semantic interoperability) across diverse databases and datasets. Nevertheless, these standards are insufficient for delivering the promise of Policy Cloud for several reasons, including:

» Lack of semantic interoperability in the given domain. For example, compliance to ontologies about IoT and sensor data fails to ensure a unified modelling of physics and mathematics, which are at the core of any sensing task. Hence, in several cases, there is a need for extending existing models with capabilities for linking/relating various quantifiable and measurable (real-world) features to define, in a user understandable and machine-readable manner the processes behind single or combined tasks in the given domain;

» Lack of semantic interoperability across datasets from different sectors. There is no easy way to link related information elements stemming from datasets in different sectors, which typically comprise different schemas. For example, environmental datasets and transport datasets contain many related elements, which cannot however be automatically identified and processed by a system due to the lack of common semantics;

» Lack of process interoperability. Policy Cloud deals with data driven policy development and management, which entails the simulation and validation of entire processes. Especially in the case of multi-sectoral considerations (e.g., interaction and trade-offs between different policies) process interoperability is required to assess the impact of one policy on another.

In the following section, the multi-layer framework for interoperability across diverse policy-related datasets, which will facilitate semantic interoperability across such datasets (both within a single sector or across different policy sectors) is described.

2.2 Policy Cloud multilayer framework for Interoperability

Ensuring the interoperability of data and setting up data sharing services between different sectors and domains while building on existing European [9] , international, or national standards is one of the vital parts of the European Commission's data strategy [10]

To this end, the Policy Cloud project has sought to support the key role of the Commission and the Member States in fostering better cooperation across all levels of public administrations in the Union, especially by breaking down the organisational and digital silos. The project has accordingly focused on public administrations' need for more specific guidance on how to improve governance of their interoperability activities to establish cross- organizational relationships, streamline processes and support end-to-end digital services [11] More specifically, Policy Cloud partners have worked on how to further improve end-to-end integration and automation, making better use of reliable sources of information, and openly publishing public data, while ensuring that citizens' and businesses' records are treated in accordance with applicable legal and ethical requirements [12]

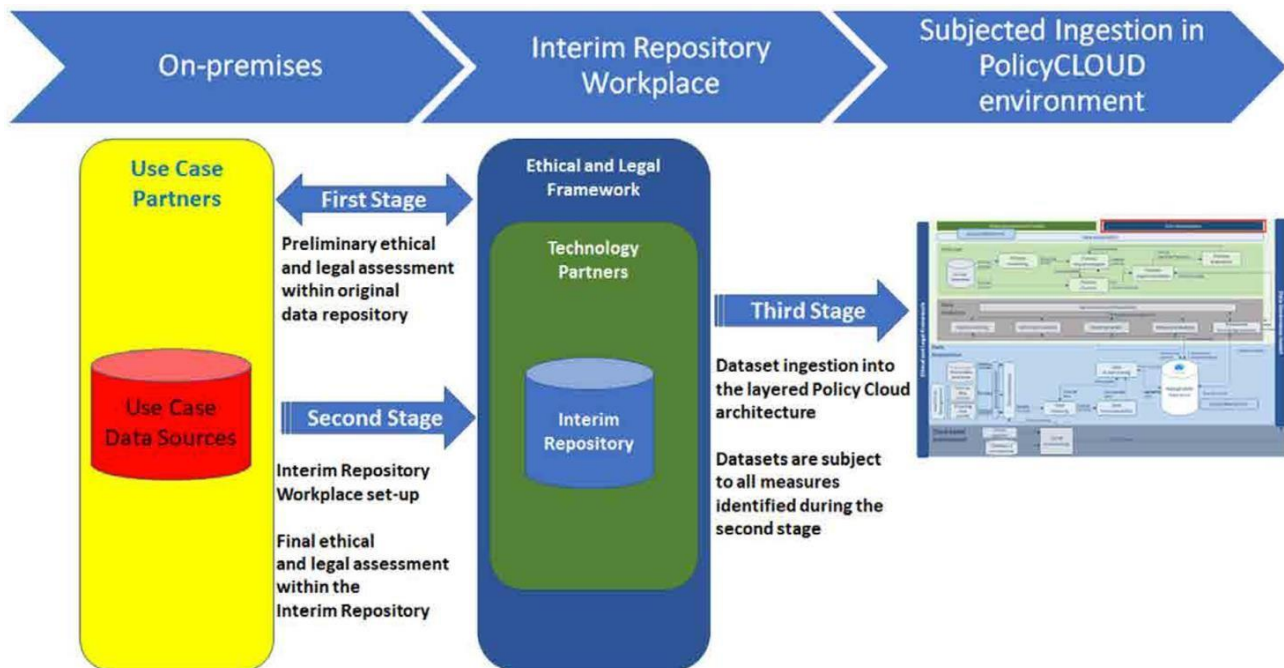## 2.3 3-Dimensional end-to-end analysis using a novel Interim Repository Workplace

FIGURE 1: 3-DIMENSIONAL ANALYSIS WORKFLOW

The efforts described in the previous section follow a three-stage approach (described below), known as an "**end-to-end legal and ethical assessment**", which was developed jointly by a team consisting of the Policy Cloud Legal, Use Case and Technology partners. **This three-stage approach can set the ground for standardising the related processes [13] .** Aside from describing this approach below, we also include an illustration of how it may work in practice, based on assessments carried out in the scope of the Policy Cloud project.

The **first stage** involves a preliminary assessment of the implications around the use of available data within their original data repository/ies (e.g., publicly available website, or a site with authorised access) from a legal and ethical perspective without performing any data movement or processing. The goal of this preliminary assessment is to ensure that teams of legal and technology consultants, which have been authorised by the relevant data owner (e.g., a public administration), can access and assess the data in question in compliance with applicable laws and in an ethically sound manner.

For example, one of the scenarios tackled in the Policy Cloud project involves the use of signals received via a call centre operated by the Municipality of Sofia (Bulgaria) related to road infrastructure and adjacent urban infrastructure within the city. This scenario seeks to provide a detailed analysis of the frequency and territorial distribution of these signals over time, based on various parameters (e.g., categories, types, areas, districts, and major transport roads), with the overall goal of supporting and facilitating data-based municipal decision-making concerning the city's roads and infrastructure.

Two main initial concerns were identified: (1) this dataset would include personal data, notably information on citizens or other individuals raising signals, and (2) there may be contractual or intellectual property-related restrictions applicable to the use of this dataset for the intended purposes.

After a preliminary assessment, it was established that (1) a legal basis could potentially be identified under EU and local privacy/data protection law for the reuse of these personal data for the intended purposes, the collection of which could be supported by an information notice and minimised to the extent strictly necessary to allow the analytics to be successfully carried out (e.g., removing citizen/ individual identifiers), (2) and (3) the Partner involved in the project which triggered this scenario is also legally responsible for management of the dataset, such that no issues around contractual/intellectual property-related restrictions should arise. Given the overall positive result, it was possible to move to the second stage of this approach.

In the **second stage**, a technology workplace is set up, called the Interim Repository. Provided that the preliminary assessment carried out over a given dataset is positive (i.e., the possibility to access and assess the corresponding data in a legally and ethically sound manner is confirmed), this dataset will be uploaded to the Interim Repository. Within this second stage, a final assessment of the legal and ethical soundness of the use of the given dataset for one or more specified purposes is then carried out. Where potential legal/ethical constraints are identified (e.g., the dataset contains personal data which is not necessary for the analysis purpose which is intended), specific technical/organisational measures are identified and implemented to deal with each constraint (e.g., the dataset is to be adequately cleaned of unnecessary personal data before further analysis in the third stage, to better protect the privacy and data protection rights of any individuals whose data may be included therein). In this sense, the second stage comes before the sophisticated process of fully ingesting data into the cloud environment and aims to:

1. Remove data/information silos;
2. Provide an introductory stage in enabling data interoperability;
3. Provide a legal and ethical "umbrella" for the data stored in the repository;
4. Provide safe and authorised access to data owned by Use Case partners;
5. Provide datasets that will be used for cross-domain evidence-based policymaking; and
6. Provide datasets that will be used for replication through the learning of Policy Makers from best practices applied to other use cases on a common (horizontal) domain of interest (e.g., environmental protection).

Specifically, for safe and authorised access, Policy Cloud has prioritised this as a pillar of security and as a platform that handles user data. The Interim Repository is secured both via a user authentication mechanism called Keycloak, as well as an access control mechanism called Attribute Based Access Control (ABAC). Keycloak ensures that only users with valid credentials can interact with the Interim Repository while ABAC limits access to users that conform with the attributes defined in the implemented Access Policy. Both mechanisms working in conjunction ensure the security of the Interim Repository and authorise the source of any manipulation to the data. The same strong securities of the Interim

Repository are extended to the whole Policy Cloud environment, as all components utilise the two aforementioned mechanisms

After having uploaded the relevant dataset to the Interim Repository, further assessments were carried out as to the potential privacy/data protection implications around the use of the dataset (given that the initially identified contractual/intellectual property issues were addressed in the preliminary assessment). Examples of recommendations arrived at include the following:

1. The relevant Partner would need to ensure that it has a legal basis to process personal data (and potential special categories of personal data) under the GDPR and under Bulgarian privacy/data protection laws - given that this processing was to be carried out for statistical purposes, its reuse was found to be admissible under Art. 25m of the Bulgarian Personal Data Protection Act;

2. An information notice was to be developed to ensure that citizens/individuals who had raised signals in the past, and which were to raise signals in the future, would be aware of this use of their signals and, as a result, able to exercise their data subject rights under the GDPR and Bulgarian privacy/data protection laws - in particular, the information notice published on the Municipality's relevant website was proposed to be updated to cover these activities;

3. The dataset was subjected to close scrutiny to confirm (1) whether it would be possible to proceed with the analytics activities with only anonymous or aggregated information, and (2) if not, what would be the absolute minimum amount of data needed to carry out these activities. It was determined that the dataset would be purged of identifiers concerning the signal submitters, and that even though the form used to submit signals includes free text fields (which might include personal data not easily purgeable), these analytics activities would not include any textual analysis of such fields.

Given the overall successful implementation of recommendations proposed, the dataset was confirmed as ready for release (i.e., the third stage of this approach).

Finally, during the **third stage**, the dataset (subject to any measures identified during the second stage) is "released" from the Interim Repository and made available for further analysis.

The **difference between the second and third stages** is the fact that datasets during the second stage are visible by collaborators, and they are not hidden by the complex engineering mechanisms of the third stage, which are required for a cloud environment to perform. Still, during the second stage, discussions and agreements at political and legal levels are performed, guiding the technology steps that will take place at the third stage, which includes methods such as data anonymization and aggregation.

The main legal and ethical criteria on which the above-described assessment activities are based are those related to data protection (with the General Data Protection Regulation – (EU) Regulation 2016/679 being the most important reference to this regard) and intellectual property and database protection laws.

However, to ensure ethical, regulatory, and societal sustainability of the project, not only statutory regulations are relevant, but also voluntary standards, such as:

1. IISO/IEC 27013:2021, on the integrated implementation of an information security management system (ISMS), as specified in ISO/IEC 27001 and a service management system (SMS), as specified in ISO/IEC 20000-1;

2. The CSA Cloud Controls Matrix, which is a cybersecurity control framework for cloud computing developed by the Cloud Security Alliance (currently on Version 4);

3. The CSA Code of Conduct for GDPR Compliance, which is a code of conduct under Art. 40 GDPR (currently undergoing an approval process with the French Data Protection Authority – the CNIL), designed to provide a consistent and comprehensive framework for cloud service providers to comply with the GDPR;

4. ENISA's European Cybersecurity Certification Scheme for Cloud Services (still in a draft stage at present);

5. EU Cloud Code of Conduct. It consists of requirements for Cloud Service Providers that wish to adhere to the code, plus a governance section that is designed to support the effective and transparent implementation, management, and evolution of the code. The code is a voluntary instrument, allowing Cloud Service Providers to evaluate and demonstrate its adherence to the code's requirements, either through self-evaluation and self-declaration of compliance and/or through third-party certification. The code has been developed to cover GDPR requirements and, following the positive opinion issued by the European Data Protection Board, has been officially approved by the Belgian Data Protection Authority in May 2021.

2.4 Building legal and ethical requirements into the analytics function registration process

Given that the Policy Cloud platform has been designed to allow for analytics tools to be registered for use via the platform, such tools should accordingly be held to a high standard of legal/ethical compliance. This is important, inter alia, to ensure that the platform can remain lawfully useable in the EU (e.g., by preventing the registration/use of tools which do not meet applicable legal requirements), to ensure the platform's data security (e.g., by preventing the registration/use of tools which may compromise the platform's integrity, or the confidentiality of data stored on the platform), to preserve the platform's trustworthiness (e.g., by preventing the registration/use of tools which do not meet baseline ethical standards, and which thereby present a relevant risk of deriving skewed, biased, inaccurate or otherwise misleading information from the data source to which they are applied) and to prevent potential reputational damages suffered by the platform managers. As such, technical/organisational measures to provide assurances in this respect must also be implemented on the platform, in particular to ensure that the following risks were reasonably and substantially minimised:

» Output generated by these activities leading to skewed, biased, inaccurate, or otherwise misleading information being derived from a given data source, which may potentially culminate in misguided policy-making activities;

» Opacity in the output generation process, such that the ability to explain/understand how a given output was generated by these activities from a given input (as well as the possibility of false positives/negatives or other errors) is reduced or non-existent, which may potentially prevent or disincentivise Policy Cloud users from critically examining the output / information derived from a given data source during their decision-making process.

As AI-based technologies (including machine learning) are leveraged in connection with some of these tools, adherence to the 7 key requirements described in the AI- HLEG's Ethics Guidelines for Trustworthy AI [14] was also recommended as an important step towards maximising the trustworthiness of the Policy Cloud platform.

A balance must, however, be struck between maximising legal/ethical compliance and maximising the registrability of analytics tools. Overemphasis on compliance may create an overly restrictive registration process for such tools, which may ultimately compromise the effectiveness of the Policy Cloud platform in allowing tools other than those pre-existing to be leveraged; however, overemphasis on registrability triggers all risks related to the failure to meet a high standard of legal/ ethical compliance mentioned above.

A practical initial answer found to this dilemma was the requirement for Policy Cloud users seeking to register a tool to document measures taken to address applicable legal/ethical requirements, through adequate fields added to the registration Application Programming Interfaces (APIs). In particular, specific input parameters to be addressed by tool registrants include requirements to provide details on specific measures taken to address the risk of biases inherent to the functioning of the tool, and on the relevant trade-offs encountered in the development of the tool, decisions made concerning the balancing of competing requirements (e.g., result precision vs. fairness) and measures taken to implement and document those decisions. This input can then be linked, on the Policy Cloud platform, to the analytics tool upon its successful registration. This can later be accessed by any Policy Cloud user wishing to make use of such a tool.

This answer provides some degree of assurance to users regarding the legal/ethical soundness of a given tool, and allows users to (1) make more informed and risk- based decisions about whether or not to leverage a given tool, to (2) provide information to relevant stakeholders about the tool if leveraged, and (3) to critically examine the output generated by the tool in the context of their policy-making decisions. However, for the future, it would be relevant to develop some standard form of communication of this information on different analytics tools which may be registered on the platform (and on other similar platforms), to facilitate user comparisons between tools and to allow greater interoperability with other systems performing similar or related activities.

2.5 On the need for a Policy Model standard

In addition to the need of finding and using common standards for data production and management within the EU, there is a need to create and use common standards for policymaking based on the use

of information derived from these data. This dimension has not yet received the attention it deserves, but it is necessary to record the long journey from data management to reality-based decision-making.

The concept of the policy model is central to this transition. Its usefulness has been demonstrated in the previous Horizon 2020 project CrowdHEALTH [15] where it referred to Health policies [16] and has been extended to Policy Cloud for policies of any scope. Standardising the policy model can lower the communication barrier to policy decision-making by speeding up processes such as comparing policy-making processes, finding similar approaches between European Community countries, comparing effectiveness and versioning during their implementation. The proposed policy model of Policy Cloud, simple in its basic design but with the option of adding additional semantic levels, can provide a "fingerprint" of the purpose, need, stakeholders and monitoring indicators that lead to a policy decision.

Additionally, although it is essential to standardise the structure of a policy model, so that there is a common language in communication between policymakers, and in their accountability to the public, this effort should go even further. The results from the use of Analytical Tools to calculate the Key Performance Indicators (KPIs) that support a policy are also layers of information that also need to be standardised. Each analytical tool that in a given period processes specific data to produce information in the formulation and monitoring of a policy, creates results that are components of a new object (Analytics Result Object). AROs are the building blocks for calculating KPIs, but they are suitable as meta-data for input into other Analytical Tools as well.

The standardisation of the policy model in the first phase and the analytic results afterwards, will give an unprecedented momentum to the use of decision support systems for the production and monitoring of policies based on actual data and relative indicators.

2.6 Conclusion & next steps

Standardisation of data interoperability in data driven policymaking is a topic that can affect a wide variety of technological, ethical, and legal cases and is becoming more important as data sources become more readily available and diverse. Some standards have been already established in this field, but further effort is needed to ensure legal and ethical compliance in more complex and heterogeneous cases. This need was obvious during the development of the Policy Cloud project and as part of it a 3-dimensional approach for an end-to-end analysis has been developed. This approach utilised a novel Interim Repository and proved efficient in the context of the project.

The next steps for this approach and for standardisation in this field is to explore solutions that will maintain the fine balance between maximizing legal/ethical compliance, which can create over restrictive registration and onboarding processes and maximizing registrability of data analytics tools, which in turn can lead to failure to meet legal/ethical standards. The proposed approach of Policy Cloud to require assurance of legal/ ethical measurements and documentation upon user registration led to increased awareness and soundness of legal/ethical issues in data analytics but it can be further improved and fine-tuned to achieve even greater balance between compliance and registrability.

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3 Collaboration with relevant projects & initiatives

The collaboration, put in place since the beginning of the project with relevant initiatives in the digital ecosystem and the standardisation field, continued during the third year of the project.

This section highlights the initiatives relevant for the project's work in the standardisation context.

3.1 StandICT.eu

About

StandICT.eu 2023, Supporting European Experts Presence in International Standardisation Activities in ICT, GA No. 951972, is an EU-funded, Coordination and Support Action StandICT.eu 2023 addressing the specific challenges of the topic ICT-45-2020, "Reinforcing European presence in international ICT standardisation", running from September 2020 to August 2023.

Impact

The benefits of the collaboration forged between Policy Cloud and StandICT.eu 2023 is not only easily discernible but symbiotic with obvious advantages to be gained by both projects. Following the work done and described in the D7.7 M24, StandICT.eu and Policy Cloud produced the White Paper "Cloud for Data Driven Policy Management" as highlighted in section 2. The document published on the Zenodo platform in late November 2022 already reached impressive figures in views and downloads (100 downloads and +130 views at the time of writing this deliverable).

3.2 IEEE/ACM

About

IEEE is a leading developer of international standards that underpin many of today's telecommunications, information technology, and power-generation products and services. The CCGrid symposium series serves as a major international forum for presenting and sharing recent research accomplishments and technological developments in the field of Cluster, Cloud, and Internet computing.

Impact

In May 2022 Policy Cloud took the stage during the 22nd IEEE/ACM International Symposium on Cluster, Cloud, and Internet Computing, with a presentation led by Panayiotis Michael, the technical coordinator of the project[1]. During the EU Day, and especially during the "Making Data-Driven Policy Management a

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[1] The 22nd IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing – https://policycloud.eu/news-events/events/ccgrid-2022

Reality across Europe" session, solutions and tools developed by Policy Cloud were presented. The workshop allowed the exchange of ideas and discussion on research priorities with the EU, with otherEU research projects and with the wider international research community. Our participation was an important source of input for the content of the whitepaper in terms of understanding the standardisation landscape, requirements and gaps.

3.3 SWForum.eu

About

SWForum.eu aims to create a self-sustainable online forum that facilitates and encourages both researchers and practitioners as well as projects in software, digital infrastructure, and cybersecurity to create intersections of expertise and a multidisciplinary approach to research and innovation. The forum seeks to set in place the European research roadmap and offer cross-fertilisation of competencies to all other research and innovation areas.

Impact

Through the SWForum.eu Webinar "Leveraging OS technologies for better services in the European software ecosystem" in October 2022, UBI participated as the Policy Cloud partner, and demonstrated the innovative solutions developed within the project and also joined the discussion on the European initiatives concerning policy and standardisation in open-source technology during the panel session. The standardisation-related recommendations from the white paper were also presented, and the event was used a validation activity prior to the white-paper publication.

3.4 BDVA

About

The **Big Data Value Association** – BDVA, is an industry-driven international not-for-profit organisation with more than 230 **members** all over Europe and a well-balanced composition of large, small, and medium-sized industries as well as research and user organizations.

BDVA/DAIRO focuses on enabling the **digital transformation** of the economy and society through **Data** and **AI** by advancing in areas such as big data and AI technologies and services, data platforms and data spaces, Industrial AI, data-driven value creation, standardisation, and skills. **BDVA TF on standardisation** aims to integrate research, technology, development, and innovation with standardisation.

Impact

With the collaboration already in place and following the previous activities done in collaboration with the Big Data Value Association during the previous years, Policy Cloud organised its final event during the EDBV2022 in Prague in November 2022

FIGURE 2: POLICYCLOUD SESSION AT THE BIGDATA VALUE FORUM IN NOVEMBER 2022

One-hour session "Making data-driven policy management a reality across Europe" showed the work done by the project so far, with the presentations of two pilots' representatives and technical partners, followed by a lively discussion with the speakers. With the event taking place just before the publication of the white paper a pre-publication dissemination activity was carried out and it was shared with workshop participants where possible.

Vega Rodrigalvarez, ITAINOVA, and Policy Cloud partner, moderated the event. Vega co-leads the BDVA TF on Smart Governance and Smart Cities which focuses on the collaborative use of data in Smart Governance at all levels to maximize the economic and social impact. The white paper has been shared with the TF which aims to clarify the new concept of smart governance to be addressed by means of intensive use of data as well as the use of large Data for reliable and evidence-based and trusted policy making, looking at a decentralized and community-based control over infrastructures and services

3.5 OntoCommons.eu

About

OntoCommons is an H2020 CSA project dedicated to the standardisation of data documentation across all domains related to materials and manufacturing.

OntoCommons lays the foundation for interoperable, harmonised, and standardised data documentation through ontologies, facilitating data sharing and pushing data-driven innovation, to bring out a truly Digital Single Market and new business models for European industry, exploit the opportunities of digitalisation and address sustainability challenges.

Collaboration

As reported in D7.7 (M24) [2], Policy Cloud collaborated with the OntoCommons.eu and Stand ICT to contribute to the EC's 2022 **Rolling Plan for ICT Standardisation** [3] and in particular on a new chapter on the Data Economy.

This was important to ensure that future standardisation policy objectives and recommendations are inclusive and duly representative of the requirements for standardised cloud technologies, data management and ethical and legal compliance in data driven policymaking promoted by the Policy Cloud project.

With OntoCommons.eu and StandICT.eu Policy Cloud will contribute to the further developing to the new Data Economy Chapter for the Rolling Plan for ICT Standardisation which is planned for the 2023 to being finalized with feedback and inclusion.

As already mentioned in the previous D7.7, for Policy Cloud, standards-based ontologies appropriate for describing social relationships between individuals or groups are instrumental for analysing social media information. Policy Cloud has activities related to OntoCommons for this specific topic.

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[2] Policy Cloud D7.7, Standardisation Plan and Activities, https://zenodo.org/record/5948676#.YfqKu-rMI2w

[3] EC ICT Rolling Plan https://ec.europa.eu/growth/single-market/european-standards/ict-standardisation_en, retrieved 2021-12-20

4 Next steps

Based on the standardisation white paper, written in collaboration with StandICT.eu 2023, provided in section 2, Policy Cloud partners have been keen to identify how recommendations and findings could be shared or be used by European or International standardisation organisations.

Policy Cloud therefore applied to the new EU Standardisation Booster Service (HSbooster.eu) which links projects up with standardisation experts to provide consultancy to projects on how best to contribute to the revision of existing standards or the creation of new standards, as well as ensuring that recommendations such as these are taken on board.

The HSbooster.eu consortium has identified a suitable standardisation expert (Michelle Wetterwald). The service will begin in January 2023 and may last for up to three months. It will be monitored and contributed to by Ray Walshe, Dublin City University (PolicyCloud Impact Creation Board member, reviewer of the Policy Cloud white paper and HSbooster.eu &StandICT2023.eu partner). A key objective will be to understand how and where the white paper can be shared with European Standardisation Organisations, International SDOs and National Standards Bodies, to ensure maximum impact. Recommendations gathered through this service will be reportedon in the final Activity Report. In addition, the white paper will be further disseminated through HSbooster.eu channels with Policy Cloud appearing as a "Standards–active" project. HSbooster.eu project is creating a website page dedicated to Policy Cloud where the white paper will be published and citing the Policy Cloud activities in standardisation. Recommendations from the service will also be published and Trust–IT is committed to following these up with other relevant partners.

A snapshot of this page is provided below.

FIGURE 3: APPLICATION TO THE HSBOOSTER SERVICE AND THE DEDICATED PUBLIC PAGE ON THE PROJECTS HUB

5 Conclusion

The first two Policy Cloud Standardisation Plan and Activities showed how cooperation with relevant standardisation stakeholders is crucial to facilitate the development and adoption of Policy Cloud for data driven policymaking by policymakers and public administrations.

This deliverable has highlighted the critical and complementary role played by cloud and standards in the industrial ecosystem and the aim of Policy Cloud to further contribute to the adoption of cloud technologies and OSS in the standardisation field with continuous engagement with standardisation players.

Following the release of this deliverable, Policy Cloud will start the EU Standardisation Booster Service (HSbooster.eu) to gather recommendations, gaps and priorities around the Data driven policy domain from a standardisation perspective and will continue the dissemination of the White Paper written in collaboration with the StandICT.eu project.

Through these efforts, Policy Cloud is showing how Cloud Technologies, Big Data Management, Open-Source use of technologies and contributions, can actually support standardisation and can contributing to the discussion in this field.

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