DECIDO: eviDEnce and Cloud for more InformeD and effective pOlicies

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Abstract: DECIDO enables PAs to take full advantage of shared data, analytical tools and methodologies, computational power and cloud services and co-created data, for the development of better targeted and more effective evidence-based policies, leveraging on the capabilities and services offered by the European Cloud Infrastructure. The main mission of DECIDO is to demonstrate the ground-breaking impact of the adoption of cloud infrastructure to gain access to shared data in the field of Evidence Based Policy Making. DECIDO will provide PAs with an integrated interface for the definition of policy making workflows (from evidence gathering to policy definition and evaluation) enabling the orchestration and integration among tools and services made available by EOSC, with customized tools provided by DECIDO partners and relevant (big) data coming from public, academic and private data providers. DECIDO will develop solid and realistic business plans to ensure the long-term sustainability of the results considering legal, ethical and security aspects. DECIDO will also facilitate the introduction of co-creation in evidence based policy making allowing the active involvement of citizens and communities in the process. Hence DECIDO will also contribute in enhancing trust and boosting the perceived legitimacy of authorities. DECIDO methodological and technological approach will be assessed in different exploitation scenarios - demonstrating the value of collaboration, technology transfer and cross-pollination in 4 flagship pilot activities in 3 disaster risk management domains: floods (IT), fires (ES, FI) and power outage (EL). Data and service interoperability and portability will be granted through the use of ISA² core vocabularies, in describing dataset produced and used by PAs. Considering the complexity of the challenge DECIDO aims to address, a multi-sectorial and multi-disciplinary partnership has been set up to perform all the envisaged activities.

Keywords: Cloud Infrastructures, Evidence based policy making, EOSC, co-creation

1. DECIDO Motivation and Vision

The opportunities that digital technologies offer – notably with regards to new ways of conceiving, planning, implementing and evaluating policies – are yet to be fully seized by Public Authorities. Today's society faces complex challenges such as migration, poverty, and climate change, for which not one optimal solution exists and which are increasing the complexity for European governments.

To cope with such challenges, data-driven policy making aims to make use of data sources, analytical techniques and processing power to provide policy makers support in their decisions. At the same time involving citizens and local communities through co-creation activities supports better targeted policies while increasing legitimacy and decreasing citizens' distrust in government. As part of the European Cloud Initiative, EOSC is progressively widening its user base to include Public Authorities in Europe. Through EOSC they could have easy and open access to state-of-the-art data resources and data analytics tools from the Public Sector and Research Infrastructures of pan-European relevance for their evidence-based policy making activities creating an important opportunity for Public Authorities to grasp. DECIDO project lies in this context enabling public administrations to take full advantage of shared data, analytical power, tools and methodologies, cloud services and co-creation for the development of better targeted and more effective evidence-based policies leveraging on the capabilities and services offered by European Cloud Infrastructure. DECIDO project lies in this context enabling public administrations to take full advantage of shared data, analytical power, tools and methodologies, cloud services and co-creation for the development of better targeted and more effective evidence-based policies leveraging on the capabilities and services offered by European Cloud Infrastructure.

2. Mission

The mission of DECIDO is to demonstrate the groundbreaking impact of the adoption of innovative methodologies, tools and data enabling the effective development of better evidence-based policies by public authorities. DECIDO will link Public Administrations to the data and compute infrastructure of the European Open Science Cloud - piloting the access and exploitation of a great wealth of additional resources. The project will identify and assess the benefits and limitations of the use of current big data methodologies and infrastructures in policy making in several domains. EOSC will increasingly provide all researchers, innovators, companies, local and national PAs and citizens with seamless access to an open-by-default, efficient and cross-disciplinary environment for storing, accessing, reusing data, tools, publications and any EOSC Resource for research, innovation and educational purposes. Specifically, the consortium will develop new ways and methods for using the cloud infrastructure, data and models available to public administrations which can support the policy lifecycle, to do this it will collaborate with the European Open Science Cloud initiative (EOSC) and will put together multidisciplinary expertise on big data, cloud, analytical technologies, simulation and in general the inclusion of evidence in policy processes. DECIDO will pilot the access and use of EOSC resources in different exploitation scenarios - demonstrating the value of collaboration, technology transfer and cross-pollination in 4 flagship pilot activities. To realize this vision, the project will start off with the identification and analysis of the benefits and limitations of the use of big data methodologies and cloud technologies in policy making in several policy domains. Following this initial assessment, appropriate reusable (replicable and portable) models and methodologies will be developed taking into consideration unmet needs and limitations. Furthermore, the project will develop an effective framework for the co-creation of such tools and methodologies and the generation of data, as well as a framework for the assessment of the impact of big data tools and methodologies in the policy making process. To reach its aim DECIDO will introduce a portal and a set of tools that in combination with EOSC's services and data,

will enable evidence-based policy and involvement of citizens and communities in co-creation practices meeting the challenges and needs arising from the policy making activity of the Public Administration (PA). DECIDO Portal will provide PAs with an easy to use interface to define, manage and evaluate their policies in a collaborative way leveraging:

- A distributed Cloud platform available through the EGI Federated research cloud infrastructure which brings together tens of Cloud providers across Europe. This Cloud infrastructure allows DECIDO; 1) to run compute- or data-intensive tasks and host online services in virtual machines or docker containers on IT resources accessible via a uniform interface; 2) high-throughput data analysis to run compute-intensive tasks for producing and analysing large datasets and store/retrieve research data efficiently across multiple service providers; 3) federated operations to manage service access and operations from heterogeneous distributed infrastructures and integrate resources from multiple independent providers with technologies, processes and expertise offered by EGI;
- Research data from 20 major research infrastructures, including ESFRI[1] projects and landmarks, producing, curating and integrating major research data in various scientific domains (e.g. Natural Sciences, Environmental Engineering) available mainly through B2Find and EGI DataHUB services;
- Data from other data providers (external to EOSC), including Public Administrations themselves (e.g. ARPA Piemonte[2], OpenWeather[3]);
- Other services available through EOSC, Catalogue and Marketplace (e.g. EGI Notebooks, Amnesia, EGI Online Storage, EGI Cloud Compute);
- Tools/services external to EOSC as for example tools already in use by PAs and tools offered by the project partners in order to cover the whole evidence-based policy lifecycle.

The consortium will then initiate and implement pilot projects and continuously evaluate their impact on the organization and on the policy making process during the pre- and post-implementation phases. As a result of the pilots, the project team will develop evidence-based pathways of adoption to facilitate the replication of practices and proven implementation cases of tools/services and methodologies. This will enable other public administration beyond our pilot projects to follow our implementation suggestions, in order to initiate a wider diffusion and ultimately set the stage for wider adoption of DECIDO Portal, approach and methodologies and EOSC services by Public Authorities in different policy domains and contexts. In order to facilitate the diffusion of knowledge and practices, the developed pilots and the accompanying lessons learned and results will be provided on the DECIDO Observatory embedded in the project portal. The project will explicitly define a roadmap and a set of business plans for the adoption of the technologies and approaches proposed by the project. The business plans will define the best scenarios to enable a smooth digital transformation with sustainability up front. The pilots were chosen in four different countries having diverse economic, social and cultural background and in three different disaster risk management domains (fires, floods and power outage) aiming at validating DECIDO approaches and tools in different contexts and ensure their flexibility and replicability. Through its approaches and piloting activities DECIDO will boost the use of EOSC by Public Authorities enabling innovation in the policy making sector, removing European

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[1] https://www.esfri.eu/
[2] https://www.arpa.piemonte.it/rischinaturali/accesso-ai-dati/opendata/openda
[3] https://openweathermap.org/

fragmentation, allowing crosssupport and cross-collaboration and the use of secure compute- and data-intensive services. The DECIDO pilots will also provide guidance to EOSC on the potential of research data exploitation in the Public Administration sector, allowing EOSC to develop a specific data integration roadmap to better support the users form the public sector.

About the Authors

Francesco Mureddu

Francesco Mureddu is an analyst and strategist in innovation and technology policies. During his career Francesco has supported, and in many cases, driven the design and delivery of consultancy and research projects in a wide variety of topics including the impact of Digital Transformation, Big data and Artificial Intelligence, e-government, Smart cities, ICT-enabled social innovation, future science, Citizen Science, research and innovation policies, health. Francesco masters a wide array of methodologies including evaluation and impact assessment of policy initiatives and projects, policy development and benchmarking, technology roadmapping and scenario development, economic and econometric modelling, cost/benefit and sensitivity analysis, stakeholders' consultation and engagement. Francesco is currently Director at the Belgian Think Tank Lisbon Council. Aside from his primary activity, he serves as partner and business development consultant for the consultancy start-up DataPower s.r.l. and for the cybersecurity start-up Intelligence Framework inc., as well as consultant for several clients including PwC Italy, KPMG Italy, NOVA, JRC Seville, Outsight s.l., Region Emilia-Romagna (Italy), Proter s.r.l., Grimaldi Lex and I2Grow s.r.l. Further, he serves as trainer in Project Management, Agile and Lean Management, Digital Transformation and Corporate Finance for Manpower and Adecco, as well as in Proposal Writing for Apply s.r.l. He holds an MA in Economics from the Catholic University of Louvain and a PhD in Economics from the University of Cagliari, and is able to work and interact in English and Spanish. Francesco is currently leading the involvement of the Lisbon Council in the following projects: SPOTTED (CEF-TC-2020-2), REINFORCE (SwafS-15-2018), SALL (SwafS-01-2020), DECIDO (DT-GOVERNANCE-12-2020), ACROSS (DT-GOVERNANCE-05-2020), ETAPAS (DT-TRANSFORMATIONS-02-2020), LETHE (H2020-SC1-DTH-2018-2020), Surrounded by Science (SwafS-24-2020). Francesco is also member of the Advisory Board of the projects: Policy Cloud (H2020- DT-GOVERNANCE-12-2019), INTERLINK (H2020-DT-GOVERNANCE-05-2020), and FEMaLe (H2020-SC1-DTH-2018-2020). Finally, he regularly serves as track chair in the conferences EGOV-CeDEM-ePart and Data for Policy, and he is Area Editor for Area 1: Data Driven Transformations in Policy & Governance, for the journal Data & Policy, Cambridge University Press.

Roberto Di Bernardo

Roberto Di Bernardo is Senior Researcher and Head of the Open Government R&D Group (part of Open Public Service Innovation Lab). He is an Electronic Engineer. In 2014, he got a I level Professional Master's diploma in "Clinical Engineering" from University of Trieste, while in 2003 a II level Professional Master's diploma in "Internet Software Engineering" from University of Catania. He has been working as researcher in Engineering R&D Laboratory since 2004, being involved in management and technical activities in many Italian and European projects. He is also acting as R&D opportunity and network developer for the entire Public Sector R&D area. At the moment, he is coordinating URBANAGE project (H2020-DT-Transforations-02) and his group is leading/involved, among others, in the following projects: DECIDO (H2020-DT-Governance-12), INTERSTAT (CEF-Public Open Data), SPOTTED (CEF-Public Open Data), ACROSS (H2020-DT-Governance-05), URBANITE (H2020-DT-Transformations-02), PLATOON (H2020- DT-ICT-11), REBUILD (H2020-DT-Migration-06), CyberSec4Europe (H2020-SU-ICT-03), TAILOR (H2020-ICT-48). Currently he is leading the Smart Governance and Smart Cities sub-group of the Big Data Value Association and co-leading the Smart Cities Domain Committee of the FIWARE Foundation. He has been involved in committees for the organization of several public sessions on Smart Cities and Digital Government topics within relevant European events, like the European Big Data Value Forum 2021.