Data Driven Policy Cluster

Co-creating digital tools for better governance

Governance Ethics for Evidence Based Policymaking

Data Driven Policy Cluster
Joint Policy Brief

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Executive summary

In this the Governance Ethics Track of the Evidence Based Policymaking in Europe Summit 2021, core ethical issues identified in the context of projects to develop policymakers' ability to make key policy decisions based on objective criteria derived from real-world data were discussed - such as ensuring the relevance of collected and processed data, the management of potential biases within datasets or processing algorithms, and the transparency, explainability and security of the data analysis and visualisation process - as well as strategies implemented in each of the relevant projects to ensure these (and other) issues are efficiently addressed, so as to simultaneously protect the trustworthiness and effectiveness of the solutions pursued by each Project. In this Brief, we go over the most significant ideas and conclusions reached during this Track, and also provide a summary of the policy recommendations based on the experience gathered within the different Projects.

Governance ethics for evidence based policy making

During the Governance Ethics Track of the Evidence Based Policymaking in Europe Summit 2021 this Track, the presentations given ranged from general challenges and constraints in dealing with legal, ethical, societal and regulatory requirements applicable to public policy development in a digital environment, to more domain-specific presentations on ethical issues for people involved in climate change intervention and environmental sustainability.

An overview of the main topics addressed in each presentation is set out below:

Ethical issues on climate change, and how policy making can be reached from data used, were tackled in DECIDO's presentation. This presentation also developed the DECIDO Project's main goals, such as trying to answer the question of how the use of data and the climate situation is a matter of economic relevance. It was explained that, given that the costs of recovering from an adverse event caused by anthropic activities are higher than the costs of preventing such events, the DECIDO Project experiments with and validates these approaches in the domain of disaster risk management, dealing with a range of disaster scenarios with different ethical implications.

AI4PublicPolicy is a joint effort of policymakers and Cloud/AI experts to unveil AI's potential for automated, transparent and citizen-centric development of public policies. Its open cloud platform for automated, scalable and transparent policy management is based on unique AI technologies aimed at ensuring fully-fledged policy development/management functionalities based on AI technologies (ML, Deep Learning, chatbots,..), relying on a human-driven approach with strong emphasis on citizen-centric policies development and optimization thanks to the realisation of citizen-oriented feedback loops throughout the entire public policy development lifecycle. The key legal and ethical implications in AI4PublicPolicy regard personal data, the use of simulated data, the data quality, algorithmic bias and other issues related to the deep learning and machine learning methods. In order to adequately tackle these issues and ensure the legal compliance and ethical soundness of the action, a dedicated task was inserted in the work plan and an Ethics Advisory Board was established.

The DUET Project addresses the legal and ethical aspects of using the advanced capabilities of the Cloud and high-performance computing (HPC) through the use of (big) data, Internet of Things (IoT) and artificial intelligence (AI) technology as an integral part of policy and decision-making processes in the Project's planning and implementation phases. While the use of data and technology is capable of enabling many improvements for the public good, it may also generate risks vis-à-vis specific stakeholders or the general public. Such risks should be addressed, where possible, by building a good understanding of legal and ethical requirements and designing a set of adequate safeguards. During the Project's lifetime, applicable legal requirements were continuously monitored, and led to adjustments of compliance and feasibility assessments where necessary.

The Policy Cloud project seeks to develop a cloud-based platform to assist public policymakers in collecting, cleaning and analysing multiple different data sources (through a variety of AI-based analytic and data visualisation tools), in order to empower them with the ability to make more effective and evidence-based policymaking decisions. On the matter of ethics, legal, regulatory, and societal governance, core aspects to consider in this Project are the need to ensure transparency towards policymakers and citizens in the policymaking process, the need to avoid inherent biases which may occur within both datasets and analytics functions used in this process, and the importance of complying with relevant legal and security standards to ensure the trustworthiness of the platform (and of policies generated through the platform).

The IntelComp Project will build a cloud platform that will offer text mining tools for Science, Technology and Innovation (STI) policy, ensuring policies are created "with" people and not just "for" people. The Project, then, plans to engage quadruple helix stakeholders to participate actively in the context of three Living Labs (Artificial Intelligence, Climate Change/Blue Economy and Health/Cancer): stakeholders will be involved for the co-creation of the platform as well as for the co-creation of STI policies in those domains.
As these persons are subjects of research, the Project has set up an informed consent procedure for the participation of humans and in regards to personal data processing. Furthermore, an Ethics Manager has been appointed to ensure that all applicable ethical compliance requirements are respected, as well as an Ethics Advisory Board to promote artificial intelligence and STI data ethical compliance within the Project.

Challenges to overcome

While each of the Projects can point to different specific challenges seen as most relevant, there are points of convergence which highlight that certain issues cannot be overlooked in any effort to contribute towards the development of European evidence-based policymaking:

1 Big Data Processing

Where large amounts of data are collected and processed to support the creation of policies, it is essential to ensure the quality of those data in order to provide greater assurances that the output generated from their analysis accurately reflects the realities which those data represent. Data preparation is essential to ensure the high quality of data (e.g., without missing, unknown or false values/records), which, if unmanaged, can lead to distorted and unfair policy outputs and therefore to unethical policies.

An effective bias management (to root out inherent prejudice in the compilation of a dataset and to ensure that datasets used accurately represent the population which will be targeted by a policy) and data cleaning program (to prevent the processing of excessive, irrelevant, corrupted or inaccurate data) must therefore be implemented, to foster policymakers' and citizens' trust in output generated from big data analysis.

Legal constraints on data use (such as where personal data or protected databases are involved) may further limit the ability to successfully leverage data for policymaking purposes, and must therefore be the subject of a prior assessment to ensure that they can be lawfully used by policymakers.

As regards personal data, in several cases the research initiative rely on using considerable amounts of them, collected by accessing public records,sensors placed in public spaces, on-line user activities and contributions, Internet-of-Things data sources, social media and other interaction channels. In this regard, it is important to identify the specific personal data sources to be used, as well as when data are going to be collected or transferred for policy making purposes.This also applies to the circumstances of using secondary source personal data. Furthermore, in some case real-life personal data are replaced by simulated personal data: in order to substitute for real-life data in the automated learning processes, such simulated data must be generated in sufficiently large amounts and with relevant and representative properties in order avoid the generation of biassed and/or unfair policies which might bear on citizens life, work and rights, and implicitly result in unethical outcomes.

2 Explainability

Policymakers may not trust output generated by a platform if they cannot understand it, and should in any case not be incentivized to forego their own critical judgement when considering AI-generated data analyses (as policymakers' personal experience can be of great value in detecting output which is incongruent with the reality to be addressed by a given policy). This means that the process to go from the collection of data to the generation of its analysis must be transparent and easily explained to policymakers, so that they can make informed decisions based on the evidence made available to them and explain these decisions to their citizens.

Furthermore, proper attention should be given to the use of DeepLearning, ML technologies and other AI components by public administrators and other personnel with limited ML/AI understanding and not acquainted with the internal intricacies of the algorithms. Such users might be unaware of biases and unfair processing and inference due to their limited knowledge of the impact of the learning parameterisation on the outputs.

3 Security

Where large amounts of data are processed so as to assist policymakers in carrying out their activities in an evidence-based manner, the potential for harmful data leaks or unauthorised access to data is increased. Such breaches can lead to severe negative impact for affected organisations and individuals, particularly where personal data is affected. It is therefore important to ensure that any platforms or tools built to harness the power of data for policymaking are able to ensure an adequate level of security to the data which they store and/or process. This requires selecting and implementing technical and organisational measures which are both effective and can feasibly be implemented (e.g., in terms of costs and technical feasibility, without substantially compromising the goals which are to be achieved by the platforms/tools).

With the rapid growth of technology involved in smart cities, it is also becoming vital to identify and implement security controls for their secure operation. Smart city security is essential for the technologies to be incorporated in the smart city infrastructure, and establish citizen's trust in such projects.[1]

[1] Ralko, Sh., Kumar, S, "Smart City Security", KSU Conference on Cybersecurity Education, Research and Practice, 2016.

4 Co-creation and user-friendliness

Ensuring that platforms/tools meant to assist policymakers in evidence-based decision making are built around specifications and requirements provided by policymakers is not only common sense, but also important from an ethical perspective: where these platforms/tools are understandable and easy-to-use for policymakers, this increases the likelihood that they will be used correctly and effectively to derive meaningful conclusions from analysed data, and consequently that effective and beneficial policies will be generated from them. This emphasises the importance of involving the intended platform/tool users in the creation process, and focusing also on the user experience (rather than just the technical capabilities).

Despite the importance of participatory processes and of the co-creation approach, citizen validation might not reliably detect and eliminate punctual situations where the policy outputs could discriminate and treat citizens unfairly. Therefore it is opportune to technically implement policy validation procedures resulting from the use of the AI/ML components in order to generate fair, unbiased and non-discriminatory policies.

Recommendations

A diverse set of recommendations to address the above challenges, as well as others inherent to the management of legal and ethical constraints inherent to data-driven policymaking, could be proposed, with examples listed below:

1 Ensuring the quality of data used to train analytics functions is paramount to ensuring the adequacy and reliability of the output generated by those functions (in other words, the likelihood that a function's analysis will provide a result which is aligned with the reality represented by the ingested data);

2 It should be possible for policymakers to fully understand how platforms/tools built for their policy making purposes work, and in particular how the results presented to them via those platforms/tools are generated from the data which they used as a basis. This will allow policymakers to trust those results, use their own judgement in policy making, and explain their decisions to their citizens;

3 It is fundamental to do an assessment of legal constraints which may prevent the use of a certain dataset (or datasets) for policymaking purposes. This is particularly relevant where the use of protected databases or personal data may be involved;

4 Datasets ingested for analysis purposes should be subject to careful scrutiny also from a quality and ethical perspective, to prevent the use of unnecessary / inaccurate / corrupted data, and to mitigate the impact of any biases inherent to the dataset (e.g., resulting from the manner of its compilation, or because the dataset does not accurately represent the population to be targeted by the policy under development);

5 Relevant security measures should be identified and implemented, to ensure the protection of data used in the policymaking process. Such measures may, for example, include appropriate contractual agreements with data owners and platform providers, logging systems to track activities performed on data, and appropriate access control mechanisms to prevent excessive or unauthorised access to data. Relevant security standards (e.g., ENISA, ISO, CSA CCM) can be used to define an authoritative acceptable security baseline;

6 In the context of research or innovation projects, where co-creation processes are triggered involving stakeholders relevant to the Project's piloting phase, it is often useful to profile stakeholders in order to more effectively interpret and implement their contributions. However, this sort of profiling may have privacy/data protection implications, where personal data is used to make inferences about natural persons (such as representatives of those stakeholders) - considerations as to applicable legal bases, such as consent, and ethical requirements around such profiling, such as transparency and affording the possibility to opt-out, may need to be taken in such cases.

7 Privacy or Data Protection Impact Assessments (PIAs or DPIAs) are one approach to making Privacy by Design (PbD) more viable and effective. They are also mandated by the General Data Protection Regulation (GDPR) in certain cases. It may be recommended to make smart-city Data Protection Impact Assessments participatory and collaborative, so as to enhance data protection and societal acceptance (trust) of the proposed smart-city innovations.

Appendix

Scan the QR Codes with your smartphone or click the pink buttons.

The presentations provided during the During the Evidence Based Policy in Europe Summit, Governance ethics session are downloadable on Zenodo.
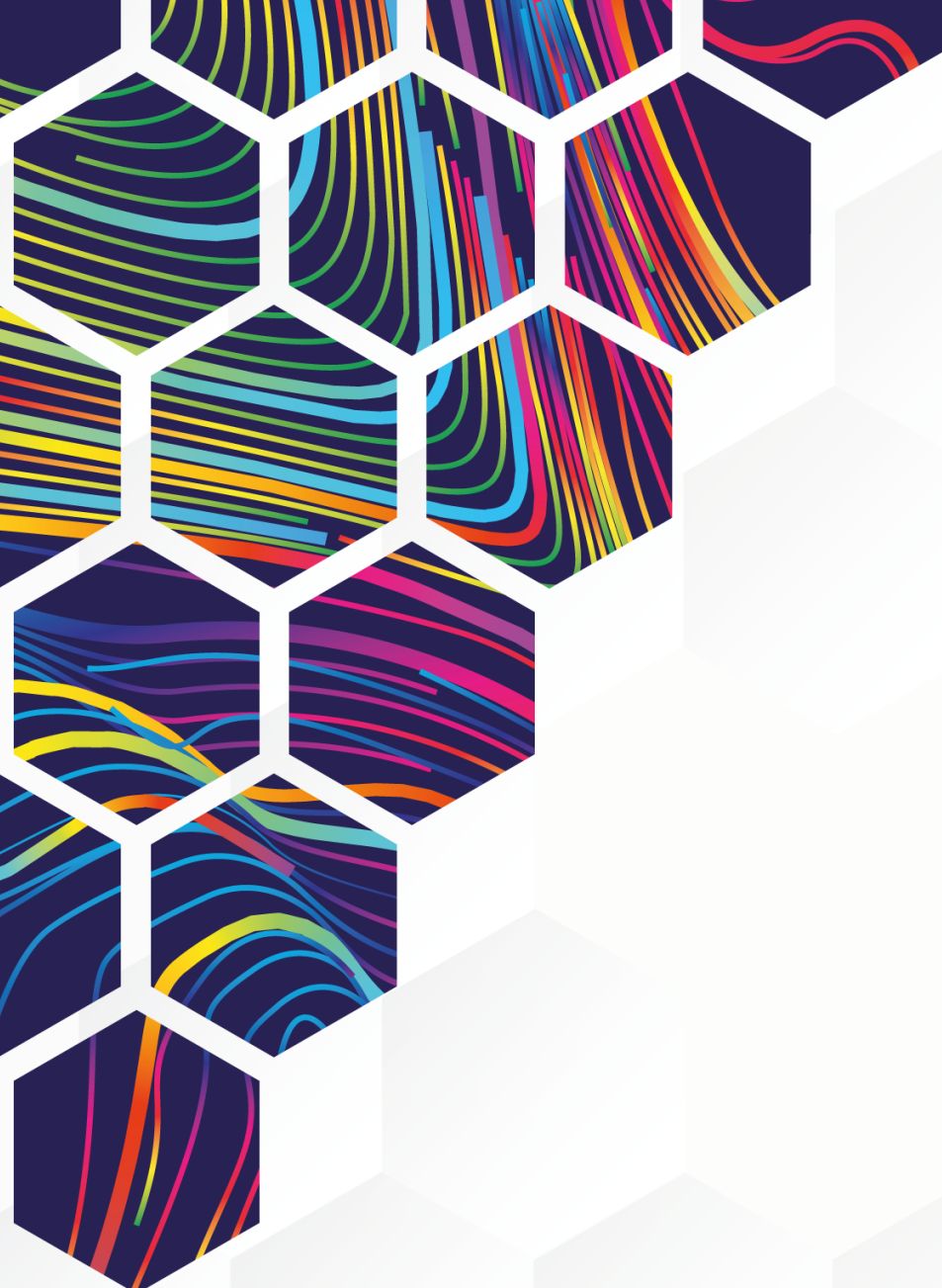
Watch the recordings of the session on YouTube.