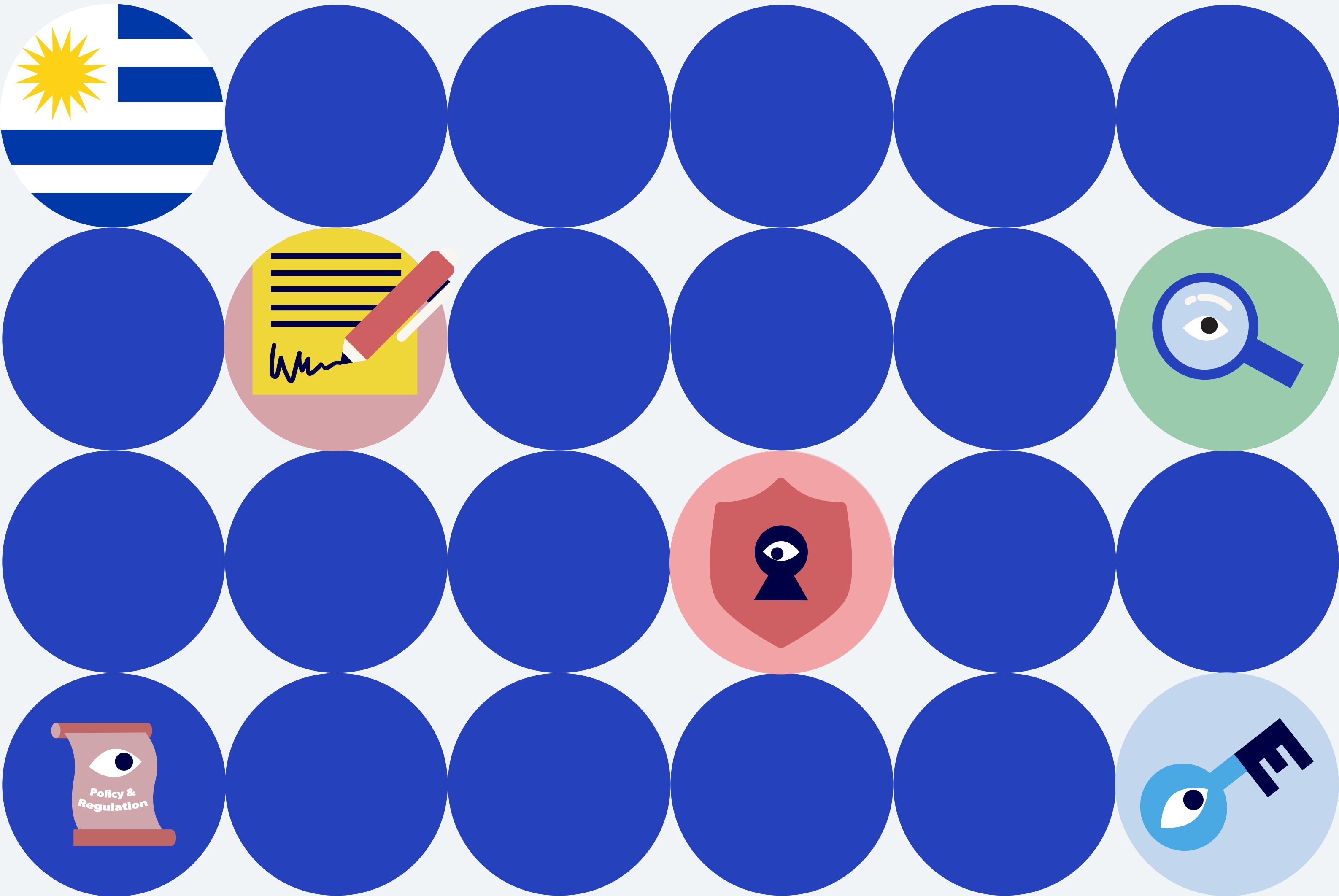
Insights from a policy prototyping
exercise with Uruguayan entities

Open Loop | Meta

Prototyping Privacy-Enhancing Technologies Guidance in Uruguay



Index

→ Executive Summary 8

1 Introduction 10

What are PETs? 12

Global policy landscape 13

About the policy prototype 15

About the testing 16

2 About the Open Loop Uruguay Program 17

Local policy landscape 18

About the cohort 19

3 Findings 20

3.1 Companies reported a low familiarity with PETs, especially advanced ones 21

3.2 The PETs playbook helped companies to identify privacy risks and mitigation strategies 21

3.3 Companies experienced a burden of costs and human resource constraints. 22

3.4 Regulatory uncertainty is a key barrier to PET adoption 23

4 Policy Recommendations 24

4.1 Regulatory certainty and incentives for PETs adoption 25

4.2 Multi-stakeholder dialogues around best practices and standards 26

4.3 Direct investment in research, development, and education 27

Conclusion and next steps 28

Annex 1 - Methodology 29

Bibliography 30

Foreword

Meta's Open Loop programs in Brazil and Uruguay, conducted between 2022 and 2023, mark a significant milestone in the advancement of policy prototyping tools and methodologies for governing emerging technologies in Latin America, in a context in which the notion of policy experimentation and regulatory sandboxes seem to have become an integral part of policymaking in the public and the private sectors.

After a successful program on transparency and explainabilityi in Mexico, Open Loop turned to the South Cone to run a parallel experiment on Privacy-Enhancing Technologies (PETs) in partnership with independent implementation teams and several participating companies in Brazil and Uruguay. This effort provided an outstanding opportunity to dive deep into the peculiarities of each country, their policy and institutional ecosystems, as well as the nature of the players starting their PETs adoption journey in each jurisdiction. It also offered a singular opportunity to understand how valued PETs are for the protection of personal data across the board, and to map out similarities that exist in both contexts in terms of challenges and opportunities around the wider adoption and use of PETs.

In a nutshell, Open Loop Brazil and Uruguay generated three important outcomes: first, the programs contributed to raising awareness and to developing capacity on the topic of PETs during the early stages of the program; second, by leveraging a consortium of companies, experts and policymakers, the program sparked multi-stakeholder dialogues and knowledge sharing in both countries (including across borders) that are likely to endure even after the conclusion of that journey; and, finally, the collective and collaborative effort produced sound and reliable evidence that will most certainly feedback into policy-making processes across the region and beyond.

As we express our gratitude to all the participant companies, observers, researchers and Meta colleagues who helped us build and develop Open Loop Brazil and Uruguay, we seize this opportunity to express our confidence that this final report represents an important and decisive first step in connecting tech and policy innovation, fostering a closer collaboration between those building emerging technologies and those regulating them in Latin America.

Paula Vargas
Director, Privacy Policy & Engagement, Latam

Diego Rafael Canabarro
Head of Privacy Policy, Latam

Foreword

In April 2024, Privacy-Enhancing Technologies (PETs) were ranked number two among the World Economic Forum's "Top 10 Emerging Technologies to Address Global Challenges." This recognition underscores the critical importance of safeguarding privacy in an era of rapid digital transformation and the swift evolution of data-driven technologies, including Artificial Intelligence (AI). As the digital landscape continues to expand, it presents both challenges and opportunities for innovative solutions that balance data utilization with personal privacy.

As civil society organizations operating within the technological sphere, both the Instituto Liberdade Digital and C Minds' Eon Resilience Lab (a Mexican organization exploring the intersection between emerging tech, social, and environmental impact) are committed to developing strategies that minimize the potential risks of emerging technologies while maximizing their positive social impact. By experimenting with these topics, we can draft human-centered policy recommendations based on our learnings and aligned with global practices and standards.

Given the significant opportunities PETs represent, it is crucial to further explore and understand how Latin American markets can continue to leverage data-processing tools while protecting individual privacy. The Open Loop program provided an exciting opportunity not only because such exercises serve as dynamic mechanisms to bridge the gap between theoretical discussions and tangible solutions, but also they bring diverse perspectives as they involve a diverse range of stakeholders, including government, academia, industry, and civil society. These collaborative endeavors facilitate a holistic comprehension of the subtleties of PETs in specific context, ensuring that our findings would translate into comprehensive and sustainable recommendations.

In a global context where PETs are being prioritized, the publication of our findings positions Latin America at the forefront of international conversations. This strengthens the region's ability to contribute unique perspectives and innovations to the global dialogue on technology and data protection. These insights are a crucial step towards ensuring that the benefits of digital transformation are realized broadly and fairly, reinforcing the region's role as a leader in the global technology landscape.

This report is not only a reflection of our commitment to responsible technology deployment but also a vital resource for people striving to navigate the complexities of AI and data privacy. We hope that the findings in this report will contribute to expanding society's knowledge concerning PETs, help entities and governments in the process of implementing these technologies, to foster inclusive and collaborative spaces and discussions and support policymakers in the drafting of further privacy-related frameworks.

Constanza Gómez-Mont
President and Founder at C Minds

Maria Marinho
Co-fundadora do Instituto
Liberdade Digital

Cláudio Lucena
Universidade Estadual da Paraíba

Foreword

The Agency for the Development of Digital Government and the Information and Knowledge Society of Uruguay (Agesic) is the leading entity within the State in digital transformation processes. This transformation goes hand in hand with a solid legal basis supported by regulations on access to public information, cybersecurity, interoperability, digital signature and identity, digital services, open data, accessibility, and personal data protection, among others.

Recent legislative changes gave new impetus to the role of the Agency, positioning it as a leader in the development and implementation of National Data and Artificial Intelligence (AI) Strategies. In addition, controlled test environments or regulatory sandboxes have been created as a mechanism for the promotion of safe technological innovation.

Data and the development of AI are inextricably linked. Privacy protection norms must be matched with the legitimate use of data for the development of products and services that benefit people. The State has a central role in this, not only as a user and generator of data in the public sector, but also in providing tools and instruments that can be used by the private sector.

The Open Loop program sought, through supporting local companies of different natures, to understand the issues inherent to the adoption and operationalization of privacy-enhancing technologies (or PETs) and to provide those companies with capabilities of doing so.

This program, followed by public entities including Agesic, and supported by different organizations and different observers, achieved its objectives and proposed a series of recommendations for the adoption of this type of technologies, which are necessary and essential for proper data governance.

Agesic has been part of the program in the understanding that it provides valuable tools for the construction of the strategic lines that are being developed in the field of data and AI. This is because understanding the needs of the private sector in the adoption of technology is an instrumental part of this construction.

We have to thank the promoters of this program and those who voluntarily participated in it. Their valuable contributions will surely serve to continue the discussion on this topic so relevant for the development of initiatives in favor of innovation and respectful of people's privacy.

Maximiliano Maneiro
Deputy Director of Information
Technologies Area at AGESIC

About the program and this report

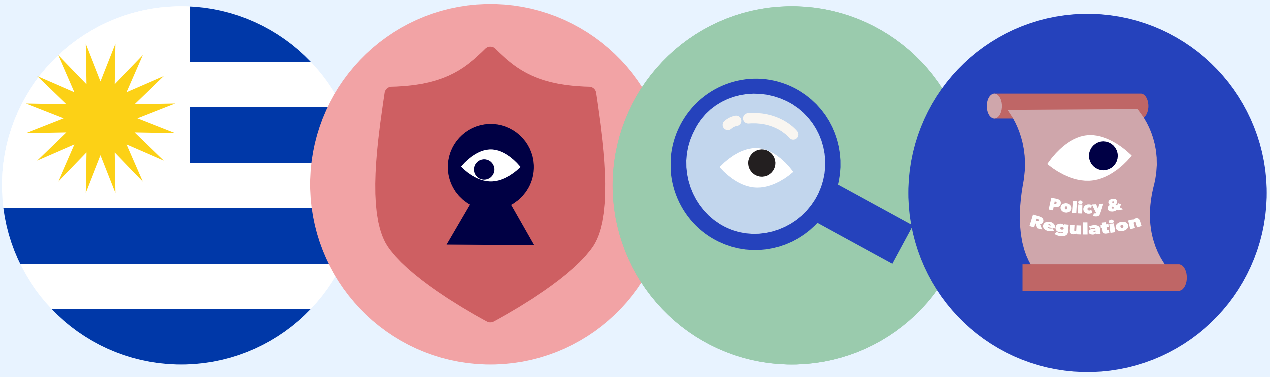
Meta's Open Loop is a global program that connects policymakers and technology companies to help develop effective and evidence-based policies for AI and other emerging technologies.

Through a structured methodology, Open Loop participants co-create policy "prototypes" and test new or existing AI policies, regulations, laws, or voluntary frameworks. These multi-stakeholder efforts support rulemaking processes and improve the quality of guidance and regulations on emerging technologies, ensuring that they are understandable, effective and feasible in practice.

This report presents the findings and recommendations of the Open Loop Uruguay program on PETs, launched in September 2022. This policy prototyping program began simultaneously with an identical program in Brazil, with the intention of guiding and enabling entities in both countries to leverage and apply PETs to help reduce the identifiability of data and mitigate privacy-related risks, including in AI systems. Both programs were developed independently, and each had its own local partner responsible for implementing the program. The Open Loop Uruguay program was rolled out in Uruguay from September 2022 to April 2023 in partnership with C Minds' Eon Resilience Lab.

Written by: This report was written by Claudia Del Pozo, Daniela Rojas, David Lehr, Laura Galindo, Maartje Nugteren, and Diego Rafael Canabarro

How to cite this report?
Del Pozo, C., Galindo, L. & Rojas Arroyo, D., Lehr, D., Nugteren, M., and Canabarro, D. R. "Prototyping Privacy-Enhancing Technologies Guidance in Uruguay" (2024), at https://openloop.org/reports/2024/02/Uruguay_Report_PETs_en.pdf



Acknowledgements

The Open Loop Uruguay program was created by Meta and co-designed and facilitated in collaboration with C Minds' Eon Resilience Lab, the Inter-American Development Bank (IADB), and the IDB Lab with support from Uruguay's Agency for E-Government, Information and Knowledge Society (AGESIC) and the Uruguay's Unit for Regulatory and Personal Data Control (URCDP).

Special thanks to the following experts (listed in alphabetical order) for their valuable time and input throughout this program. Their contributions were key to the implementation of this public policy prototype and creation of this report.

- Ana Castillo, Senior Official at IDB Lab
- César Buenadicha, Chief Discovery Officer at IADB
- Gonzalo Sosa, Data Protection Manager at URCDP
- Marcelo Cabrol, Head of Scalability, Knowledge & Impact at IDB Lab
- Marieke Goettsch, Competitiveness, Technology and Innovation Specialist at IADB
- Matias Bendersky, IDB Country Manager in Uruguay
- Maximiliano Maneiro, Deputy Director of Information Technology at AGESIC
- Nancy Ibarra, Advisor to the Information Society Area at AGESIC
- Nicte Cabañas, Communications Lead and Project Assistant at C Minds
- Norberto Andrade, Former Director, AI Policy at Meta
- Paula Vargas, Director of Privacy Policy and Engagement at Meta
- Virginia Pardo, Director of the Area of Information Society at AGESIC

We would like to express its gratitude and recognition to the companies that collaborated in the development of this project:

Ceibal	Codiversity	Digital Sense	Hey Now Bots	Inswitch
República AFAP	Rootstrap	SpaceDev	UTEC	VaFirma

Thank you in particular to our group of experts, who shared their deep expertise and contributed to the development of the program's research strategy: Fernando Vargas, Privacy Specialist; Javier Barreiro, Vice President of DAMA Uruguay; Lorena Etcheverry, Professor at Universidad de la República (UdelaR); Matías Jackson, Law and Technology Attorney; Patricia Díaz, Project Coordinator and Researcher at Datysoc; Sandra Segredo, Legal Advisor of the Rector's Office Universidad Católica del Uruguay.

Thank you also to our design partners at Craig Walker Design and Research, in particular John-Henry Pajak.

Executive Summary

Open Loop is a global program that connects policymakers and innovative companies to help develop effective and evidence-based policies around AI and other emerging technologies. The primary objective of this Open Loop program was to guide and enable companies in both Brazil and Uruguay to leverage and select PETs to help reduce the identifiability of data and mitigate privacy-related risks, including in AI systems.

To bridge the gap between privacy expectations and technology solutions and empower data controllers to process data in a privacy-centric manner, a policy prototype was developed and tested in the shape of a technical playbook for advancing data protection principles using PETs. This policy prototype aims to support companies by setting out data protection principles and guiding them through a 3-step process for operationalizing privacy by design principles while connecting them to the adoption of PETs.

This report shares the results of this policy prototyping program, which was rolled out in Uruguay from September 2022 to April 2023 in partnership with C Minds' Eon Resilience Lab and involved 10 entities from Uruguay. These entities are of varying sizes and sectors.

The program investigated:

- How effectively the policy prototype balances policy clarity, technical feasibility, and policy effectiveness for its intended audience.
- Participating entities' current familiarity and understanding of PETs.
- Current gaps and implementation challenges for PETs adoption by organizations in Brazil and Uruguay.
- Best practices and learnings that contribute to the successful adoption of PETs to help reduce the identifiabiliy of data and mitigate privacy-related risks.

Our findings demonstrate that in both Brazil and Uruguay:

- Entities reported a low familiarity with PETs, especially advanced ones.
- The PETs playbook helped entities to identify privacy risks and mitigation strategies.
- Entities experienced a burden of costs and human resource constraints.
- Regulatory uncertainty is a key barrier to PET adoption.

Based on the results of the Open Loop Brazil and Uruguay programs and the feedback received from participating entities, the following recommendations are offered to regulators and policymakers responsible for data governance, privacy, and data protection concerning PETs:

1. **Policymakers should embrace a flexible, risk-based approach to the legal concept of anonymization:** Measuring the level of risk should be a fact-specific assessment that considers the context of data processing, what technical measures (such as PETs) have been applied to the data, and what non-technical measures (such as access controls and legal restrictions) have been applied to the data. Also, measuring risk should focus on whether parties who might realistically get access to the data could re-identify the data given all of the protections that have been applied to it.

2. **Policymakers should clarify that entities can process data for the purpose of reducing the risk of identifiability:** In particular, for jurisdictions that rely on GDPR-like laws—those under which a legal basis is required to process data—policymakers should clarify either that: (i) no legal basis is needed for processing data for the purpose of reducing the risk of identifiability; or (ii) legitimate interests, or a similar legal basis, can readily be relied upon to conduct such processing.

3. **Policymakers have a valuable role to play in advancing multi-stakeholder dialogues around PETs:** Not only could these conversations help to build entities' capacities to deploy PETs, but they could also make progress on developing a shared understanding of PETs and how they can be effectively used in different use cases. Policymakers could convene dialogues to explore these intricacies, seeking participation from standards-setting bodies and industry-wide associations in the process.

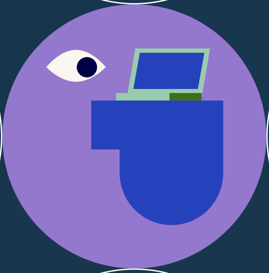
4. **Policymakers should directly invest in PETs research and development, as well as public education about the benefits of PETs:** Policymakers could also fund R&D into open-source PETs implementations, which could be more readily used off-the-shelf by small and medium entities. In addition to R&D, policymakers could invest in public education campaigns that help explain to individuals how PETs can protect their privacy.

5. **Additional considerations:** Policymakers are encouraged to explore the above topics more thoroughly through regulatory sandboxes.

CHAPTER ONE

Introduction

1



> As technologies that analyze large amounts of data have advanced, so have technologies that create new opportunities for augmenting individuals' privacy. **Privacy-enhancing technologies** ("PETs") hold significant potential to address many privacy risks while still enabling the society-wide benefits that come with cutting-edge data analysis.

The recognition of these benefits has led to a spike in interest in PETs—from industry, policymakers, and privacy advocates alike—over the last few years. But, as more vigorous discussions around PETs develop, it becomes critical for all stakeholders to have deeper understandings of PETs, the practicalities of using them, and the ways in which public policy can incentivize or disincentivize their use.

Meta's Open Loop program sought to foster these understandings through related initiatives in Brazil and Uruguay, bringing together local experts, companies, and observers in each country. These initiatives aimed to develop companies' capacities to deploy PETs and, in the process, interrogate the challenges that emerged and how policymakers can address these challenges.

This report presents the key findings and policy recommendations from the initiatives in Brazil and Uruguay. The rest of this introductory chapter provides a brief introduction to PETs, summarizes the global policy landscape related to PETs and describes the common methodology of the initiatives in Brazil and Uruguay. The second chapter focuses on unique aspects of the initiative in Brazil, including its participants and the local policy landscape. Chapter three synthesizes the experiences in Brazil and Uruguay to draw out a set of key findings. Finally, the last chapter leverages these results to make recommendations for how policymakers can advance PETs adoption.

What are PETs?

PETs are an extremely diverse set of technical tools that operate in very different ways. At a high level, PETs are cryptographic or statistical techniques that preserve the informational value of data while enhancing privacy or security. But within this broad definition are many different techniques. **There is no one correct way to categorize PETs, but one potential way is to group them into four types:**

Data-altering PETs: Those, such as pseudonymization or differential privacy, that change the underlying data in some way;

Computation-altering PETs: Those, such as secure multiparty computation or federated analytics, that change who computes a function on data or how they do so;

Data-shielding PETs: Those, such as homomorphic encryption, that encrypt data or the media on which it is stored; and

Privacy-preserving machine learning: Techniques, such as synthetic data or adversarial attacks, that can be used to enhance and/or assess privacy protections in machine learning/AI (and often in other contexts too).

Another potential categorization of PETs comes from the OECD[2], which groups PETs into four different categories: data obfuscation tools, encrypted data processing tools, federated and distributed analytics, and data accountability tools. Again, there is no right way to categorize PETs, but groupings like these can provide heuristic value.

Regardless of how PETs are categorized, there are additional nuances that make talking about and deploying PETs difficult. First, PETs vary greatly in terms of maturity. Some PETs, such as standard encryption protocols, have existed for decades, whereas others, such as homomorphic encryption and federated learning, are much newer and are still being researched. Second, because PETs operate in different ways, they provide different kinds of privacy protections, some of which are easier to understand than others. For example, it is relatively easy to understand how removing a direct identifier like someone's name from a dataset preserves their privacy, but other techniques, such as secure multiparty computation, enhance privacy in more indirect, less intuitive ways. Finally, although PETs can be deployed in isolation, in practice they are often combined not only with other PETs, but also with non-technical privacy-enhancing tools, such as access controls and contractual restrictions on data use. Technical and policy conversations around PETs must recognize and embrace these complexities.

Global policy landscape

As PETs have advanced, so has global interest in them. Governments and international institutions are increasingly expressing optimism about the role that PETs can play in improving privacy, and they are eager to further investments in PETs in their jurisdictions. Table 1, below, presents a non-exhaustive snapshot of ways in which policymakers are attempting to meet these goals. Importantly, Table 1 does not include examples from Brazil or Uruguay; efforts in Brazil will be described in Chapter 2.

Table 1. A sampling of PETs-oriented initiatives and policies.

Region/Institution	Initiative/Policy	Description
United States	National Strategy to Advance Privacy-Preserving Data Sharing and Analytics[3]	The White House Office of Science and Technology Policy established this strategy to advance the use of techniques like PETs. Among other things, it encourages federal agency adoption of PETs, increased investments in research and development, increased education about PETs, and great international collaboration on the topic.
United States	Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence[4]	To enhance privacy in AI, the Order directs the formation of a Research Coordination Network on PETs, as well as the identification by federal agencies of opportunities for using PETs.
United States	National Institute of Standards and Technology (NIST) Guidelines for Evaluating Differential Privacy Guarantees[5]	This bill would direct NIST to fund research into PETs, and would direct federal agencies to collaborate on policy mechanisms for advancing PETs adoption, including the voluntary standards and guidelines.
United States	Privacy Enhancing Technology Research Act[6]	This bill would direct NIST to fund research into PETs, and would direct federal agencies to collaborate on policy mechanisms for advancing PETs adoption, including the voluntary standards and guidelines.

United Kingdom	Information Commissioner's Office (ICO) draft guidance on anonymization, pseudonymization, and PETs, and final guidance on PET[7]	The ICO consulted on detailed, 5-part draft guidance, including a chapter on anonymization, and then published a more limited-in-scope final PETs guidance, referencing the draft guidance for additional details.
United Kingdom & United States	PETs prize challenges[8]	The US and UK governments partnered to fund the development of PETs solutions for particular use cases.
European Union	European Data Protection Board (EDPB) guidance revision	The EDPB indicated in its 2023-24 work program[9] an intent to revise its anonymization guidelines.
European Union	European Union (EU) General Court decision in SRB vs. EDPS[10]	This court decision emphasized that context matters for determining whether data have been anonymized under GDPR, and that, when data is shared, one must put oneself in the shoes of the recipient to assess re-identification risk.
Singapore	Personal Data Protection Commission Singapore (PDPC) and Infocomm Media Development Authority (IMDA) regulatory sandbox[11]	This regulatory sandbox evaluated case studies from companies, including Meta[12], answering companies' questions about the application of data protection laws.
South Korea	Revised guidelines for pseudonymous data[13]	These revised guidelines addressed the processing of pseudonymous data, particularly in the context of AI.
International	OECD PETs report and workshops[14]	OECD's comprehensive report on PETs will be followed by workshops exploring use cases and policy issues.
International	UN PETs task team[15]	The task team is focused on enhancing the use of PETs in countries' national statistics offices.

Although Table 1 presents merely a snapshot of PETs-related efforts around the world, the diversity of efforts makes clear that PETs is an increasingly important topic for stakeholders. In particular, governments have expressed significant interest in driving the adoption of PETs, both within the public sector and in broader society and industry. Another takeaway is that the exact relationship between PETs and data protection laws is uncertain and a subject of active exploration by regulators and courts. Most data protection laws do not deal with PETs directly; that is, they do not contain provisions specifically referencing PETs. That said, most data protection laws have fundamental principles—such as privacy by design, data minimization, and security—that PETs may serve to advance. Also, most laws exempt from their scopes data that has been "anonymized," "de-identified," or "dissociated."1 PETs may achieve this, but jurisdictions are grappling with exactly what the bar for this type of data transformation is. Jurisdictions like the UK and Singapore are embracing a flexible, risk-based approach, and the EU General Court's decision in SRB seems to be pushing EU law in this direction as well. But significant uncertainties (including an appeal of the SRB decision) remain.

About the policy prototype

Meta's Open Loop developed the **PETs Playbook (the "Playbook")** to serve as the program's policy prototype. The Playbook is an educational document that sought to help program participants understand more about PETs, how they can reduce privacy risks, and how they can be implemented. To accomplish these goals, the Playbook set out a three-step process, asking participants to do the following:

STEP 1

Risk Assessment

Participants were reminded of principles that guide data protection, and were asked to map their data lifecycles and assess potential privacy risks by taking into account both the likelihood of unintended or unexpected data processing and the magnitude of harms that could result from such processing.

STEP 2

Identify Risk-Reducing Strategies

With potential risks identified, participants were then asked to identify which strategies they could employ to reduce these risks. Potential strategies included data-oriented ones (minimization, separation, aggregation, and hiding) and organization- or process-oriented ones (informing, controlling, demonstrating, and enforcing).

STEP 3

Select Relevant PETs

Finally, the Playbook asked participants to select and evaluate the application of PETs that were responsive to the risk-reducing strategies they identified in Step 2. The PETs available for selection included de-identification techniques, differential privacy, synthetic data, federated learning/analytics, trusted execution environments, secure multiparty computation, encryption techniques, and homomorphic encryption.

About the testing

This Open Loop program employed a mixed methods approach to answering key questions surrounding their experiences with the Playbook **(Annex 1 for more details)**. The findings presented in this report were identified through online survey responses, sequential and thematic workshops, and semi-structured interviews with participating companies.

In particular, the testing phase sought feedback—for each step of the Playbook—on three important aspects of the step:

Clarity

How clearly communicated and understandable the step was.

Effectiveness

How well the step achieved its goal (e.g., how well Step 3 enabled companies to identify the appropriate PETs).

Feasibility

How readily, given operational and real-world constraints, the participants could act on the prescriptions in a step.

CHAPTER TWO

The program in Uruguay

The Open Loop program in Uruguay was conducted with C Minds' Eon Resilience Lab in partnership with the Inter-American Development Bank (“IADB”) and the IDB Lab. Support from Uruguay's Agency for E-Government, Information and Knowledge Society (“AGESIC”) and Uruguay's Unit for Regulatory and Personal Data Control (“URCDP”) was instrumental in its success. This section provides more detail on why and how the program in Uruguay was conducted, including how the policy environment in Uruguay was ripe for an exploration of these topics, and which Uruguayan entities participated in the program. Those details for the Open Loop program in Brazil can be found in **the Brazil report**.

Local policy landscape

As described in Chapter 1, one challenge of policy conversations surrounding PETs is the unclear link between PETs and data protection laws. Most comprehensive data privacy laws do not contain provisions explicitly mentioning PETs or saying how they could or should be used. Instead, such laws contain general data protection principles, such as data minimization, which PETs may help to achieve, as well as exemptions for anonymized data, which PETs may help to create.

> Uruguay's Ley No. 18331, Ley de Proteccion de Datos Personales ("LPDP"), as subsequently regulated by Decree No. 414/009, follows this general approach, using the term "dissociated" instead of "anonymized." Art. 4 defines the "dissociation of data" as "any processing of personal data so that the resulting information cannot be linked to an identified or identifiable person." Although consent must typically be obtained to process personal data, consent is not required for data that have been dissociated. In 2017, URCDP published Criteria for the Dissociation of Personal Data[15], providing additional guidance on dissociation. Given this relatively recent interest in dissociation in Uruguay, we hope that the learnings from the Open Loop program will be helpful as conversations develop further.

About the cohort

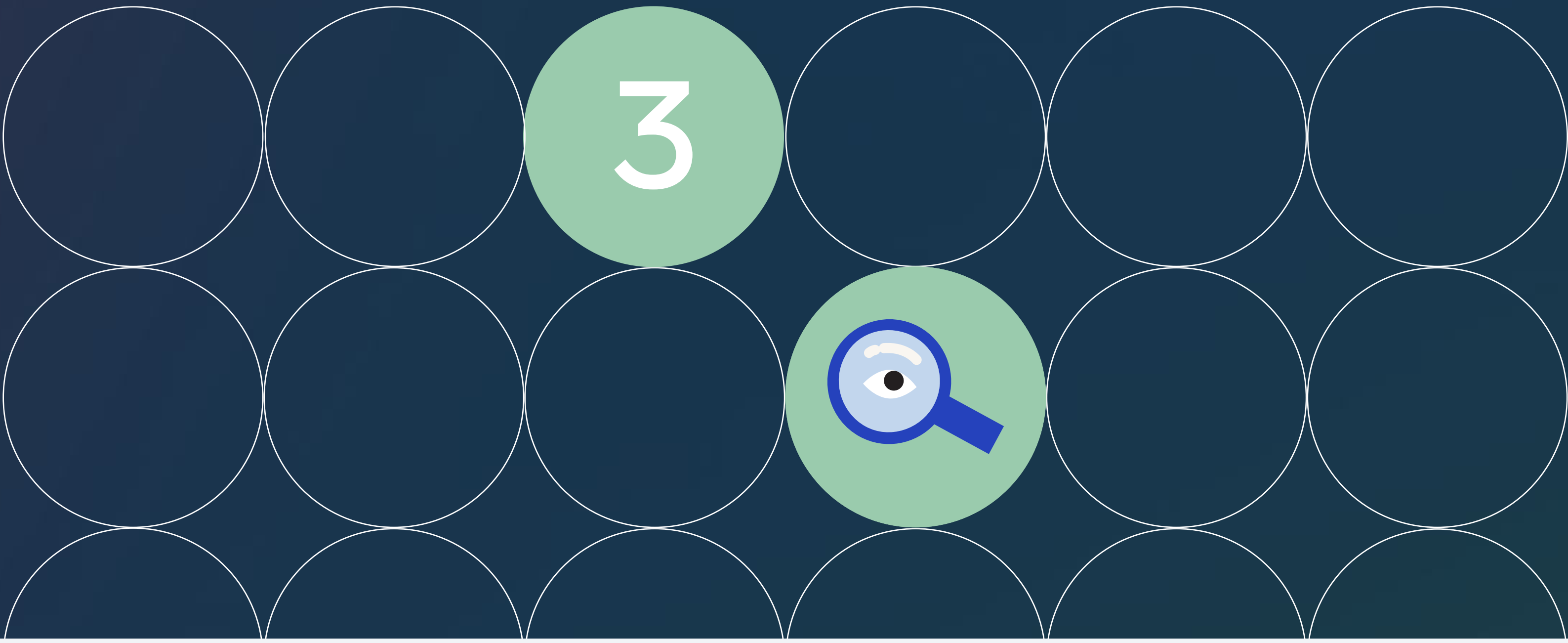
Ten companies participated in the Open Loop program in Uruguay. This was an intentionally diverse set of companies, representing companies of varying sizes and in different sectors. Table 2 presents more information on the entities.

Company	Type - Sector	Business model	Size
Ceibal	Government project - Education	B2C, B2G, B2A	Large
codiversity	Company - HR Tech and EdTech	B2B	Small
Digital Sense	Company - Technology, Machine Learning, R&D, and Consulting	B2B	Small
hey now	Company - Software Developers	B2B	Small
inswitch	Company - Fintech	B2B	Medium
REPUBLICA	Company- Finances	B2C	Large
ROOTSTRAP	Company - IT Services	B2B	Large
SPACE	Company - IT Services	B2C, B2B, B2G, B2A	Medium
UTEC Universidad Tecnológica	Government project- Education	B2C	Large
VaFirma	Company - IT Services	B2B, B2B2C	Micro

CHAPTER THREE

Findings

Across the Open Loop programs in Brazil and Uruguay, generally similar findings emerged. This section presents a summary of some of the most salient findings from both programs, extracting high-level themes from across research questions relating to the Playbook's clarity, effectiveness, and feasibility. Where appropriate, any important differences in findings between countries are noted.



FINDING

3.1 Entities reported a low familiarity with PETs, especially advanced ones

DETAILS

Across both countries, there were gaps in participants' understandings of, and familiarities with, PETs at the start of the programs. But the natures of these gaps were different in the two countries. In Uruguay, at the start of the program participants were asked to rate their familiarity with PETs on a Likert-type scale ranging from zero (a complete lack of understanding) to five (a complete understanding). The average score was a 2.5, indicating a relatively low level of familiarity with PETs. In Brazil, however, many companies had at least some understanding of PETs, with nearly 80% of companies reporting that they were already using traditional PETs like anonymization or pseudonymization techniques. The same, though, was not true for more advanced PETs, suggesting a lower awareness or understanding of more advanced PETs.

FINDING

3.2 The PETs playbook helped entities to identify privacy risks and mitigation strategies

DETAILS

Participants in both countries generally found the Playbook clear and helpful. In Brazil, for example, two-thirds of companies stated that Step 1 of the Playbook was helpful for identifying potential privacy risks. Interestingly, the primary difference between these companies and those that did not find Step 1 of the Playbook helpful was likely size; all of the small companies found the Playbook's content useful, while just over a third of large companies did. Similar findings were observed in Brazil for Steps 2 and 3 of the Playbook; a majority of companies reported that Step 2 contributed in a moderate or significant way to their ability to identify privacy mitigation strategies, and 75% of companies rated the Playbook's material in Step 3 as either somewhat or extremely useful.

In Uruguay, entities reported gleaning significant learnings from the playbook. One entity said, “We gained insights about the common risks that may arise at the different stages of the data lifecycle.” With respect to learning about risk mitigation measures, another entity said, “We gained clarity about certain techniques that are currently overlooked or not considered.” That said, entities in Uruguay reported that Step 3—selecting PETs—was more difficult to understand due to a lack of experience with, and existing knowledge of, PETs.

FINDING

3.3 Entities experienced a burden of costs and human resource constraints.

DETAILS

Although entities in Brazil and Uruguay found the Playbook generally helpful and easy to understand, entities faced significant challenges in the evaluation of the application of PETs they selected in Step 3. In particular, entities in both countries expressed concerns that implementing PETs—particularly more advanced ones—required significant costs. These included technical costs, such as investing in new or modified computing and data infrastructure, and human or operational costs, such as hiring and/or training additional employees.

In Uruguay, entities were surveyed about their main concerns surrounding PETs adoption, and they could list multiple concerns. Two concerns stood out as most prevalent, each being listed by six entities: "costs of implementation and maintenance" and "lack of resources." Notably, only three entities possessed dedicated data governance teams, potentially contributing to the frequency with which these two concerns were expressed. These concerns also pushed entities in Uruguay toward adopting simpler, easier-to-implement PETs. Of the PETs from which entities could choose, two could be characterized as relatively less complex and easier to implement: de-identification techniques and cryptographic techniques. These were selected by six and seven entities, respectively. Indeed, one entity said, "De-identification may be viable for our case as it applies to any data set, and the cost of shrinking, tokenizing, hashing, or anonymizing is quite low compared to other more complex techniques. The same goes for cryptographic techniques." The only other PETs selected by some entities were differential privacy, synthetic data, and trusted execution environments, each of which was selected by only one or two entities.

In Brazil, as mentioned earlier, most entities were already using traditional, less complex PETs like anonymization or pseudonymization techniques. But entities in Brazil nonetheless faced challenges implementing PETs, particularly more complex ones. When surveyed about their main concerns surrounding PETs adoption, 75% of entities cited implementation and maintenance costs. For some large entities, concerns often revolved around human costs—finding available engineering teams—needed to deploy both those and more advanced techniques. For example, one entity stated, "To apply PETs, it is necessary to have human resources specialized in the subject, as they are not easy to implement."

FINDING

3.4 Regulatory uncertainty is a key barrier to PETs adoption

DETAILS

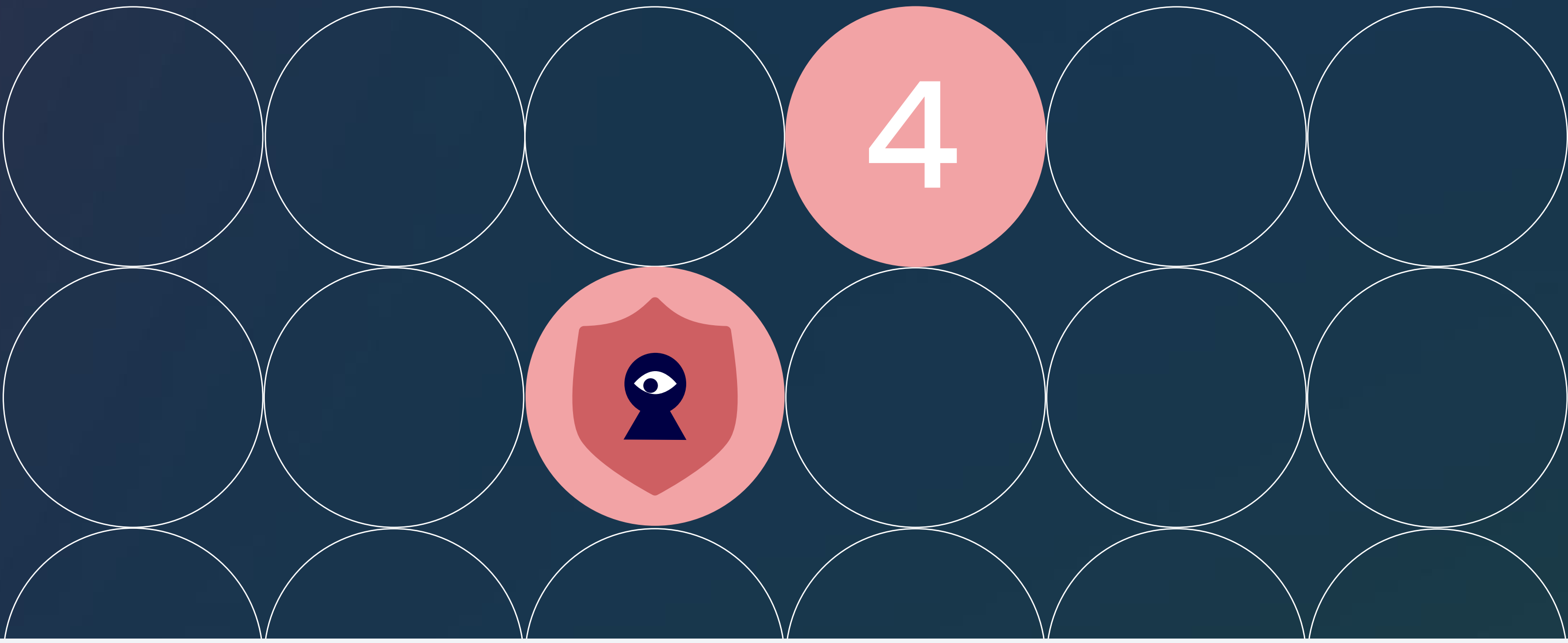
In addition to the costs that come with applying PETs, entities in both countries expressed a desire to use PETs to help advance data protection principles, but the exact relationship between PETs and data protection laws is unclear. In Brazil, 87.5% of entities surveyed cited the ability to meet regulatory expectations as a factor for implementing PETs, more than any other factor. In Uruguay, when entities were surveyed about their primary concerns surrounding PETs adoption, the most frequently reported concern other than costs and lack of resources was regulatory and legal barriers; four entities reported this as a concern. This uncertainty can itself create another kind of cost beyond technical and operational costs - the need for legal advice. Indeed, one entity in Uruguay noted that, in addition to infrastructure, their "main costs include . . . legal advice and possible modifications to the application to comply with privacy policies."

CHAPTER FOUR

Policy recommendations

Taking the Open Loop programs' results together, entities in Brazil and Uruguay are eager to deploy PETs and see their potential to advance data protection principles. But significant barriers stand in their way. Many entities—especially small and medium ones—lack existing familiarity with PETs and the technical knowledge of how to implement them. Further, implementing PETs—especially newer, more technically complex ones—comes with significant costs and uncertainties. PETs often require significant financial investments in new data infrastructure and computational power, as well as employees with relevant technical skills. Beyond these costs, entities also face significant uncertainty about how their uses of PETs relate to various provisions of data protection laws, disincentivizing costly investments in PETs.

These challenges present a prime opportunity for policymakers. Policymakers, like entities, are increasingly recognizing the value of PETs and seeking to incentivize their use. The Open Loop programs' results provide a blueprint for doing so by identifying the root causes of participants' challenges and uncertainties - causes that policymakers could seek to address. This section provides discrete, actionable recommendations that we hope will be helpful for doing so.



RECOMMENDATION

4.1 Regulatory certainty and incentives for PETs adoption

DETAILS

Policymakers around the world have the ability to draft or modify laws, regulations, or interpretations in ways that can address the regulatory uncertainty cited by participants. In particular, we would encourage policymakers to:

Embrace a flexible, risk-based approach to the legal concept of anonymization

For many entities, knowing that their uses of PETs could be deemed by regulators as legally anonymizing data is a powerful incentive. If data has been anonymized through the use of PETs, entities can do more with that data. But, as discussed previously, how different jurisdictions approach the legal concept of anonymization is unclear. Some entities, such as the UK ICO, Singapore PDPC, and IMDA have embraced what could be considered a flexible, risk-based approach. This approach recognizes that anonymization does not have to mean reducing the risk of identifiability to near zero; there can be some residual, albeit small, amount of risk. Measuring the level of risk should be a fact-specific assessment that considers the context of data processing, what technical measures (such as PETs) have been applied to the data, and what non-technical measures (such as access controls and legal restrictions) have been applied to the data. Further, as noted by the EU General Court in SRB, measuring risk could focus on whether parties who might realistically get access to the data could re-identify the data given all of the protections that have been applied to it, not whether any theoretical third party with unlimited resources and access to other data could. We would encourage policymakers to follow in the steps of the UK ICO, the Singapore PDPC and IMDA, and the EU General Court.

Clarify that entities can process data for the purpose of reducing the risk of identifiability

In addition to uncertainty over when and how using PETs can legally anonymize data, entities also face uncertainty surrounding whether their use of PETs is a justified processing of personal data in the first instance. Even though doing so is clearly aligned with the goal of data protection laws—increasing individuals' privacy—many laws fail to state that this kind of processing is permitted. We would encourage policymakers to address this deficiency. In particular, for jurisdictions that rely on GDPR-like laws—those under which a legal basis is required to process data—policymakers should clarify either that: (i) no legal basis is needed for processing data for the purpose of reducing the risk of identifiability; or (ii) legitimate interests, or a similar legal basis, can readily be relied upon to conduct such processing.

To both of these ends, we would also encourage policymakers to explore these topics more thoroughly through regulatory sandboxes. Regulatory sandboxes can provide crucial opportunities for both policymakers and entities to learn together, especially in contexts—like using PETs—that are technically complex and novel.

RECOMMENDATION

4.2 Multi-stakeholder dialogues around best practices and standards

DETAILS

In addition to providing regulatory certainty, policymakers have a valuable role to play in advancing multi-stakeholder dialogues around PETs. Open Loop program participants found great value in being able to learn from technical and policy experts about PETs, and policymakers around the world could develop similar conversations in their jurisdictions.

Not only could these conversations help to build entities' capacities to deploy PETs, but they could also make progress on developing a shared understanding of PETs and how they can be effectively used in different use cases. As discussed earlier, PETs are a diverse group of techniques that operate in very different ways and provide different kinds of privacy protections. This means that what might be considered a best practice or standard for using a PET will depend heavily on what the PET is and what context it is being deployed in. Policymakers could convene dialogues to explore these intricacies, seeking participation from standards-setting bodies and industry-wide associations in the process.

RECOMMENDATION

4.3 Direct investment in research, development, and education

DETAILS

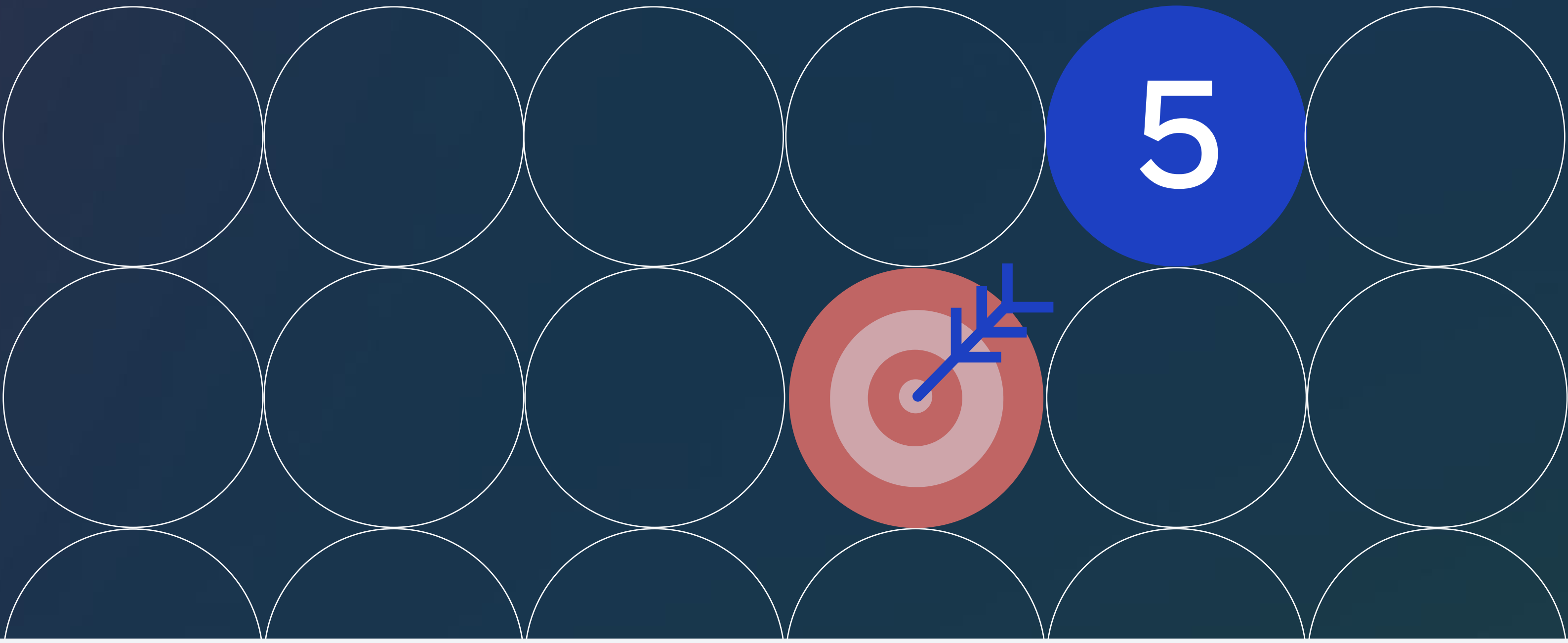
Finally, we would encourage policymakers to invest directly in PETs research and development, as well as public education about the benefits of PETs. The results of the Open Loop programs showed that many entities—especially small and medium ones—simply lacked the resources and funding to deploy PETs at scale. This challenge could be addressed by direct government funding of R&D, as the US and UK governments did through their prize challenges, providing incentives directly to entities to develop and deploy PETs. Policymakers could also fund R&D into open-source PETs implementations, which could be more readily used off-the-shelf by small and medium entities.

In addition to R&D, policymakers could invest in public education campaigns that help explain to individuals how PETs can protect their privacy. Some entities may not pursue PETs if they feel like their customers or users would not understand the benefits of doing so, especially when deploying PETs requires great resources. But greater public awareness of PETs could address this hesitancy by making it more likely that individuals would appreciate the investments entities make in PETs.

CHAPTER FIVE

Conclusion & next steps

In sum, the Open Loop programs in Brazil and Uruguay helped foster greater understanding of PETs and how to apply them among participating companies. The capacity building sessions and Playbook were viewed as helpful, but participants faced challenges when evaluating the implementation of PETs. For many participants, deploying PETs was viewed as a technically complicated and expensive process. And, although participants expressed a strong desire to use PETs to advance data protection principles, how exactly PETs relate to data protection laws was unclear, and legal advice on this point was yet another cost to consider. These learnings should prove valuable for policymakers, helping them craft regulations and programs that increase regulatory certainty, build multi-stakeholder dialogues, and stimulate research and development into these promising technologies



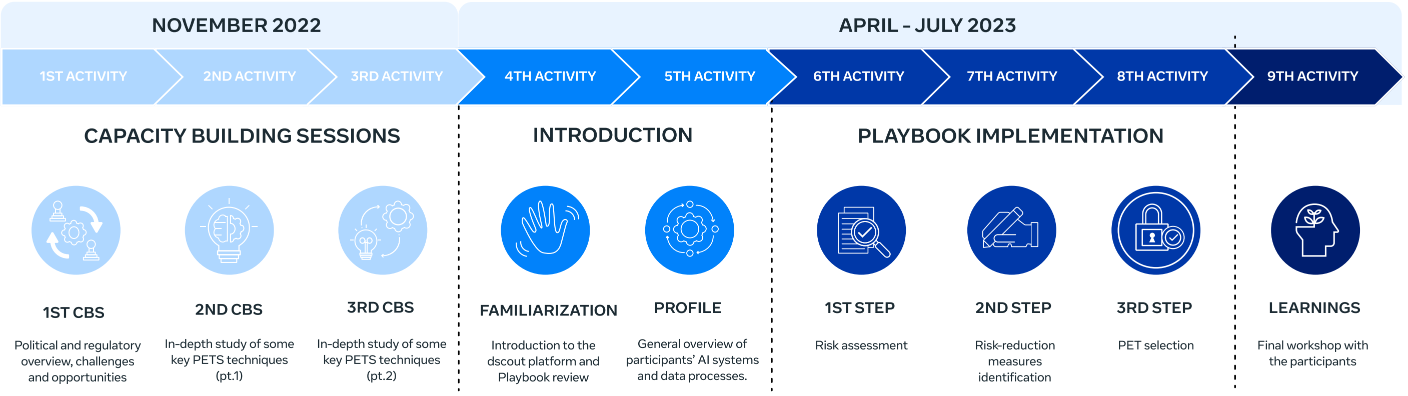
Annex 1 – Methodology

Scope

The Open Loop Brazil and Uruguay programs were guided by the following key overarching research questions:

- RQ1: How effectively does the policy prototype balance policy clarity, technical feasibility, and policy effectiveness for its intended audience?
- RQ2: What is the companies' current familiarity and understanding of PETs?
- RQ3: What are the current gaps and implementation challenges for PETs adoption by participating companies?
- RQ4: What best practices and learnings can contribute to the successful adoption of PETs to help reduce the identifiability of data and mitigate privacy-related risks?

A mix-method research methodology was employed, incorporating a combination of qualitative and quantitative methods. We collected data from different sources: desk research, interviews, surveys, and workshops. This mixed-method approach allowed us to triangulate the data and address the research questions from various perspectives (see table below).


NOVEMBER 2022
APRIL – JULY 2023
1ST ACTIVITY
2ND ACTIVITY
3RD ACTIVITY
4TH ACTIVITY
5TH ACTIVITY
6TH ACTIVITY
7TH ACTIVITY
8TH ACTIVITY
9TH ACTIVITY
CAPACITY BUILDING SESSIONS
INTRODUCTION
PLAYBOOK IMPLEMENTATION
1ST CBS
Political and regulatory overview, challenges and opportunities
2ND CBS
In-depth study of some key PETS techniques (pt.1)
3RD CBS
In-depth study of some key PETS techniques (pt.2)
FAMILIARIZATION
Introduction to the dscout platform and Playbook review
PROFILE
General overview of participants' AI systems and data processes.
1ST STEP
Risk assessment
2ND STEP
Risk-reduction measures identification
3RD STEP
PET selection
LEARNINGS
Final workshop with the participants

Limitations and Considerations:

The mixed-methods approach proposed for this study is well-suited to address the research questions and objectives. However, the limitations of the methodology should be carefully considered when interpreting the findings of this report.

- Self-reported data: Reliance on self-reported information introduces potential bias, requiring cautious interpretation.
- Limited sample size: While representative of diverse industries, the sample size may not capture all industry nuances or emerging practices.
- Temporal scope: The research captured a specific point in time (from November 2022 until July 2023), and practices may evolve over time.

These limitations necessitate careful interpretation of findings. Triangulation of data from multiple sources and methods mitigates potential biases. While not generalizable to the entire population, the research provides valuable insights and trends within the participating organizations. Future research can expand the scope and address emerging practices.

References

[1] Del Pozo, C., Nuno Gomes de Andrade, N., & Rojas Arroyo, D. “Prototipo de Políticas Públicas sobre Transparencia y Explicabilidad de Sistemas de Inteligencia Artificial [Public Policy Prototype on the Transparency and Explainability of Artificial Intelligence Systems] (2023), at: https://openloop.org/ reports/2023/10/Public-Policy-Prototype-on-the-Transparencyand-Explainability-of-Artificial-Intelligence- Systems.pdf

[2] OECD (2023). "Emerging privacy-enhancing technologies:Current regulatory and policy approaches",OECD Digital Economy Papers, No. 351, OECD Publishing, Paris,https://doi.org/10.1787/bf121be4-en.

[3] National Science and Technology Council (2023). National Strategy to advance privacy-preserving data sharing and analytics, https://www.whitehouse.gov/wp-content/uploads/2023/03/National-Strategy-to-Advance-Privacy-Preserving-Data-Sharing-and-Analytics.pdf

[4] The White House (2023, October 30). Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence. The White House. https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/

[5] Near, J., Darais, D., Lefkovitz, N., & Howarth, G. (2023, December 11). Guidelines for Evaluating Differential Privacy Guarantees. https://csrc.nist.gov/pubs/sp/800/226/ipd

[6] Privacy Enhancing Technology Research Act, no. 4755, Science, Space, and Technology (2023). https://www.congress.gov/bill/118th-congress/house-bill/4755

[7] Information Commissioner's Office (2023, June 19). Privacy-enhancing technologies (PETs). Information Commissioner’s Office. https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/data-sharing/privacy-enhancing-technologies/

[8] U.K.-U.S. prize challenges | Privacy-Enhancing Technologies. Petsprizechallenges.com. Retrieved May 2, 2024, from https://petsprizechallenges.com/

[9] European Data Protection Board (2023). EDPB Work Programme 2023/2024. https://www.edpb.europa.eu/system/files/2023-02/edpb_work_programme_2023-2024_en.pdf

[10] SRB v. EDPS, (Court of Justice of the European Union April 26, 2023). https://gdprhub.eu/index.php?title=CJEU_-_Case_T-557/20_-_SRB_v._EDPS#:~:text=EDPS,-From%20GDPRhub&text=The%20European%20General%20Court%20ordered,alphanumeric%20codes%20constituted%20personal%20data.

[11] Infocomm Media Development Authority. Privacy Enhancing Technology Sandboxes. Retrieved May 2, 2024, from https://www.imda.gov.sg/how-we-can-help/data-innovation/privacy-enhancing-technology-sandboxes

[12] Infocomm Media Development Authority. Digital Advertising in a Paradigm Without 3rd Party Cookies. Retrieved May 2, 2024, from https://www.imda.gov.sg/-/media/imda/files/programme/pet-sandbox/imda-pet-sandbox--case-study--meta.pdf

[13] Kwon, S. (2024, February 2). In the era of artificial intelligence, standards for pseudonym processing for images, videos, voices, and texts have emerged. https://www.pipc.go.kr/np/cop/bbs/selectBoardArticle.do?bbsId=BS074&mCode=C020010000&nttId=989

[14] OECD (2023).

[15] UN Committee of Experts on Big Data and Data Science for Official Statistics. Task Team on Privacy Preserving Techniques — UN GWG for Big Data. Unstats.un.org. Retrieved May 2, 2024, from https://unstats.un.org/bigdata/task-teams/privacy/index.cshtml

[16] Autoridade Nacional de Proteção de Dados (ANPD). (2024, February 28). Prorrogadas consultas sobre guia de anonimização e norma de direitos dos titulares. Retrieved from https://www.gov.br/anpd/pt-br/assuntos/noticias/prorrogadas-consultas-sobre-guia-de-anonimizacao-e-norma-de-direitos-dos-titulares