



Social Inclusion and Distributed Ledger Technologies in Public Services

TOKEN Policy Observatory Briefing Paper

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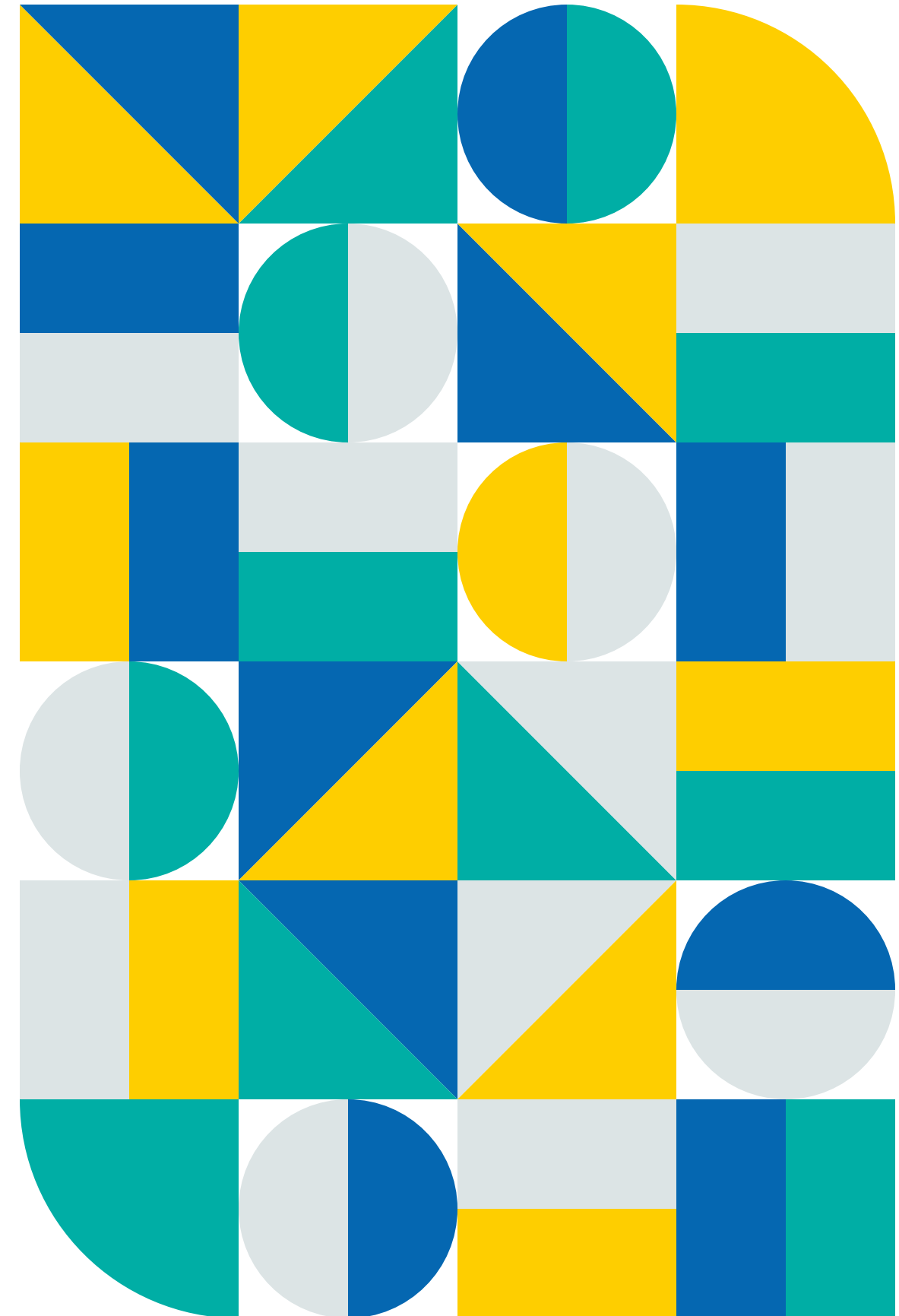




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What is TOKEN?

TOKEN, or, the *Transformative Impact of Distributed Technologies in Public Services*, is a research and development project funded by the European Union's Horizon 2020 programme. Launched in January 2020, the project will run until the end of 2022.

TOKEN aims to ease the adoption of Distributed Ledger Technologies as drivers for more transparent, trusted, and efficient public services. TOKEN furthermore develops an experimental ecosystem to enable the adoption of DLTs. The ecosystem's value is established via replicable [Use Cases](#), which contribute to transforming governance approaches towards openness and collaboration.

TOKEN also acts as a hub for actors interested in how decentralized technologies can impact and improve the work of public organizations. To get informed and engage with us, you may [join the conversation on our DLT4Gov platform](#), [visit the project website here](#) and follow us on Twitter [@TOKEN_EU](#).



The TOKEN platform and components will continue to run independently after the conclusion of the project.



What is a TOKEN Policy Observatory?

TOKEN Policy Observatory events bring together policy makers, practitioners, thinkers and researchers to discuss the possibilities of DLTs in the public sector. The Observatories mobilize experts across Europe in an effort to share ideas and knowledge. The Observatory sessions are organized by a TOKEN consortium partner, think tank [Demos Helsinki](#).

They mix co-creative methods, such as facilitated foresight work and workshops with expert presentations and panel discussions. There will be a set of five Observatories organized during the project.

TOKEN publishes Briefing Papers such as this one to disseminate the findings of the Observatories.





Introduction

The exploration of the uses of distributed ledger technologies (DLT) such as blockchain in the public sector has seen a slow and steady growth in recent years. European Commission funded research projects such as TOKEN and [BLING \(Blockchain in Government\)](#) have pushed forward pilots, while [the European Blockchain Infrastructure \(EBSI\)](#) has been consolidated and is also working on use cases and of course individual public sector organizations at different levels are testing and implementing DLT use in the public sector. A recent analysis of over 160 cases of blockchain use in the European public sector points to further steady increases in adoption – underlining, however, that the potential for efficiency still has many steps to take before solving real-life challenges ([Bosch et al., 2022](#)).

The previous four sessions of the TOKEN Policy Observatory have revolved around a similar consensus amongst the participating technology developers, civil servants, researchers and DLT-practitioners: there are possibilities for DLT in the public sector, but also many challenges to be tackled

before the purported benefits of efficiency, transparency and trustworthiness can be achieved and DLT-based public services could be more widely adopted and answer real-life challenges of users. Previous reviews of literature and public sector cases ([Bolívar et al., 2019](#); [Cagigas et al., 2021](#); [Bosch et al., 2022](#)) have brought to light the need for increased technological maturity, standards, legal certainty on one hand, but have also highlighted the cultural, organizational and social challenges related to DLT in the public sector. From a citizen-perspective, one such lens is that of social inclusion.

Broadly speaking, social inclusion refers to the process of improving people's participation in society: enhancing opportunities, increasing access to resources and services and ensuring possibilities to take part in decision making. In the context of public services, this can simultaneously mean that services should be geared to increase inclusion in society in general through provision of opportunities, capabilities and resources as well as be designed in a way that all people are able to use and access the services provided.



What does this mean for public services that use distributed ledger technologies? Overall, the lens of social inclusion brings in a critical lens to whether, how and to whom the possible benefits of increased efficiency, trust and transparency of DLT use in public services happen. Who is able to use the service? How can citizens and other users trust that their data is protected? How to make sure that the service is legitimate in the eyes of users and solves actual problems? Who should be involved in developing a service and how? These questions of accessibility, legitimacy, concerns over privacy, building understanding and capabilities and pathways of participation are not easy ones in the context of any public service. Furthermore, the context of digital brings its own challenges: digital literacy skills vary between users and the digital divide is a real, concrete hurdle not only between age groups but an intersectional cleavage that decreases the possibilities for many different kinds of people to use digital services. DLT as a perhaps complex and at least novel technological concept brings its own challenges when designing and communicating about services.

Nevertheless, bringing in the lens of social inclusion to the development and deployment of DLT-based public services can in its own right bring clarity to the complicated. At its core, it is about making the services legitimate, trusted and about tackling the correct challenges. Usable services that take into account especially those with disabilities are potentially easier to use for everyone. Clear communication about what a DLT-based service does and what its value is increases understanding and trust. And involving different kinds of people in the development of a service through-out its life cycle brings up real needs and real concerns sooner than later – increasing trust over all in society and the public sector’s capabilities to provide services that bring real public value.

This is what this briefing paper is about: a distillation of discussions at the fifth session of the TOKEN Policy Observatory session on these different aspects of social inclusion in public sector DLT use. The paper presents learnings and recommendations that have been summarized from the discussion of different experts and practitioners at the session who have worked on such projects in the past. As many of the



experts in the session highlighted, this is an important, but also under discussed topic – we need more examples, more best practices, more joint discussion on many of the topics, from accessibility to considerations of privacy and participatory processes.

Thus, we hope that this briefing paper will serve as the starting point for a continued and increasingly nuanced discussion on what social inclusion means in the context of public sector DLT use – what are the further lessons coming in from use cases and pilots and how are aspects of inclusion and participation being taken into account and institutionalized into such service development processes. You can continue the conversation with us at the [DLT4Gov community](#) or by [reaching out directly to us](#).

With this final TOKEN Policy Observatory briefing paper, we would also like to extend our heartfelt gratitude for all of those who have taken part in the TOKEN Policy Observatory sessions, joined our events, talked with us in conferences, in the online community and in general been a part of the TOKEN community. Your insights and participation have been invaluable and we hope to continue to engage with you in the future.





Methodology

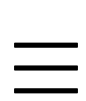
How did we extract the learnings?

The learnings gathered in this Briefing Paper are based on discussions held at an online TOKEN Policy Observatory gathering, held on the 7th of November 2022. The Observatory gathered together civil servants, policy makers, practitioners and researchers who had recently worked on DLT projects within the public sector. The 20 participants had been especially chosen to create a space for sharing learnings around the variety of different DLT initiatives, pilots and projects – a dedicated space to honestly discuss and share views on best practices but also what could have been done better. The theme for this Observatory session was social inclusion in general, with a special focus on access and accessibility, privacy and GDPR, stakeholder engagement, skills and capabilities and social inclusion in practice.

The participants worked together in smaller groups, sharing views and formulating possible paths forward in tackling

shortcomings in previous projects. The groups used an online workshop tool called Mural and the discussion was facilitated by TOKEN consortium members from the think tank [Demos Helsinki](#). After the break-out groups, all participants joined together in a plenary to share key ideas and discuss further what should be emphasized in future projects.

The insights and recommendations presented in this Briefing Paper are a distillation of the discussions within the Observatory. The next section will present these learnings in a easily accessible format, with the hope that future public sector DLT projects and pilots may learn from them and take them up in their own work and public sector officials at different levels, from municipal to national and EU, may gain a better understanding of social inclusion aspects in DLT related projects. The paper will conclude with a short reflection and summary of the learnings.



Learnings and recommendations

Access and accessibility

Privacy and GDPR

**Skills, capabilities and
clear communication**

**Participation and
involving stakeholders**



Learnings and recommendations

Access and accessibility

Access and accessibility are key concepts in thinking about and creating services that people from different groups of people are able to use with ease. In the context of (digital) public services, **access** refers to who is eligible and has the necessary tools (e.g. smartphone) to use a service in the first place: is the service limited to those with a residency or citizenship status? Is identification for the use of the service unnecessarily tied to e.g. a digital identity that the elderly are less likely to have? Is the only way to access a service through digital means? On the other hand, **accessibility** is a broader concept around inclusive design, ensuring that everyone, including people with disabilities, can use and engage with a service, and acquire information in an equal manner: is the service understandable and navigable to people with different digital literacy levels? Is there an option to listen to the text in the service so also those visually impaired can use it? Accessibility is a right enshrined in the EU Charter

of Fundamental Rights as well as the UN Convention on the Rights of Persons with Disabilities. Over all, accessible services helps not only the estimated 100 million people in the EU with some form of disability (EU-SILC 2016), but everyone by making services easier to use.

For DLT-based public services, questions of access and accessibility are similar to other digital public services and public services overall. For a person to be able to access and use the service, in most cases the fact that distributed technologies are involved should not ultimately make that much of a difference in terms of the value of the service for the end user – clear language, usability and accessibility in terms of for example language and sound are pertinent factors than the actual technology itself.



Learnings and recommendations

- Use clear, understandable language that focuses on useability and the value of the service itself.
- As for all web based services, guidelines like the Web Content Accessibility Guidelines (WCAG) 2.1 offer clear recommendations and requirements for creating accessible content and services.
- Testing and involving user groups is key also for accessibility – make sure to involve for example people from different age groups, different digital literacy and a wide range of people with disabilities to ensure that services are easy to use for different kinds of users.





Learnings and recommendations

Privacy and GDPR

The European Union's General Data Protection Regulation (GDPR) regulates the use of personal data – a core piece of regulation that has bolstered privacy, data protection and data sovereignty in Europe and globally. One of the key rights enshrined in the regulation is the right to be forgotten (Article 17). In general terms, what this means is that in certain circumstances, an individual can request (and a data controller be obliged to comply) for their personal data to be erased. Simultaneously, even without express withdrawal of consent, personal data can only be stored so long as it is justified by the purposes for which it was originally collected.

For the public sector, even though the collection and retention of data in the public sector is often based on legal obligations, GDPR rules of course apply as well. In general (for both public and private sectors), the challenge posed by DLTs is in relation to the right to delete personal data: personal data stored

directly on an immutable blockchain cannot be deleted but only updated by adding new information. Thus, the blockchain principle of non-deletion can be at odds especially with the right to be forgotten and in general rights to privacy over the processing of personal data (as laid out in Article 8(1) of the Charter of Fundamental Rights and Article 16(1) of the Treaty of the European Union).

At the same time, DLTs in general and blockchains in particular have also been interpreted to be able to advance a similar goal as the GDPR: data sovereignty of individuals and increased control over their own data. Reconciling the principles of immutability and the GDPR might at best result in the further advancement of these goals.



Learnings and recommendations

While the current status for DLT projects should of course be in strict compliance with the GDPR and not storing personal data on chain (including public keys) acts as the baseline ([Finck, 2017](#)), the conversation between industry and regulators for the clarification between the two should continue. DLT pilots in the public sector have not only encountered privacy and data protection as key issues for citizens, but have also found GDPR questions to be a recurring question in the set up of the pilots themselves. One answer could come through combining on chain anonymized references to personal data in traditional data bases, while other explorations have focused on the possibility to build layers of security and obfuscation within the technology to advance its potentials for ensuring privacy (e.g. [De Filippi, 2016](#))

- Current DLT projects need to be aware and comply with obligations under the GDPR. No private data should be stored in immutable, undeletable formats. To ensure compliance, special privacy and data protection assessment should be conducted
- Citizens are very aware of the GDPR and questions of privacy and data ownership. Public sector DLT projects should make sure to devote resources and understandable answers to users and citizens about these questions.
- Regulators and policymakers need to continue discussion between researchers and industry on how DLTs and GDPRs relate to each other. In the short term, this should produce clear guidelines for those designing and implementing projects. In the longer term, goals of how DLTs could be leveraged to further the goals of data protection and sovereignty should also be reflected in policy and regulation.



Learnings and recommendations

Skills, capabilities and clear communication

Using DLT-based public services as a citizen or business, participating in their development process and providing and maintaining them as workers in the public sector all require sufficient digital skills, understanding and clearly communicated information. The work of inclusion is also about the continued building of skills and capabilities, ensuring clear and understandable information about services and designing the services with the user in mind. This work is at the same time a longer term task of tackling the digital divide in society, but also relates directly to the work that should be considered and taken responsibility over when building and designing DLT-based public services.

Different groups involved have different needs. For citizens and users, it is important to understand how a service works, what is the value it brings, what are the basics of how the technology works and how privacy related concerns have been addressed. There isn't necessarily a need to focus specifically on complex

matters related to DLT – or at times mention it as a technical term at all, and rather focus on the functioning and value of the service itself. At the same time, those who the service affects and who use it should be able to understand and have the skills to participate in the development and critique of the service. This requires not only clear language, but thinking through phases of consultation and participation to be inclusive for people with different digital literacy, skills and needs: giving input requires not only an inclusive space, but consideration of how to frame pertinent questions, explain the service, its use and its risks in a way that is understandable to people. Using existing networks such as community centers or libraries as points of outreach for informing of service development processes or the service itself can gather together people from different backgrounds and help avoid a narrow user base or involving only certain types of early adopters in participatory service design.



Learnings and recommendations

Just as citizens and other user groups are not a monolithic group, the same goes for public sector workers that are involved in commissioning, developing, deploying or maintaining DLT-based services. Technical workers, decision makers and those for example advising citizens on service use all might need different levels of knowledge and skills, but all are core actors in ensuring functioning, purposeful services. Creating shared language and building skills capabilities of different groups working with DLT-based services across administration silos creates better services overall and contributes to DLT development by giving room for different perspectives and experiences. This is also true of sharing learnings of DLT-based pilots and service projects in a more general sense: while technical knowledge is crucial, experiences from public sector use cases should also be formulated with different knowledge users in mind to be impactful.

- Different groups have different needs. When engaging with users and with those working with DLT-based services in the public sector, different levels of digital literacy, language used, and perspectives need to be taken into account.
- It should be the responsibility of the service developers to ensure that different user groups, stakeholders and those working within the public sector around the service have the sufficient knowledge and skills to use the service and participate in its development.
- The experiences and best practices from use cases and pilots around DLT-based public services (and related social inclusion aspects) should be shared more widely and in a language and framing that speaks to those working with them in the public sector.



Learnings and recommendations

Participation and involving stakeholders

Involving users, citizens and stakeholder groups in a broader sense not only has the potential to make services more functional, but can increase trust and take up especially when it comes to digital services. The processes and methods of participation require careful design and integration throughout the life cycle of the project, from commissioning to design, development to deployment and the iteration and maintenance of the service. This is true no matter how tested a service might be in another context: the involvement of citizens and users aids in tailoring even tested pilot projects to local needs and requirements. At the same time, focusing on diversity and inclusion in the participation process is also key in bringing in the specific needs and requirements of certain user groups, especially those who have requirements related to access and accessibility. Involvement should be conducted early enough and iteratively in order for the assessment and user needs to actually be impactful. Thus, participation and

stakeholder involvement should be designed in a way that takes into account three components: i) intensity – early and recurring involvement ii) diversity – inclusion of a diverse group of people in the process and iii) quality – a well designed, continuous and impactful process (see [Callon et al, 2009](#)).

On a more practical level, the selection of tools and methods as well as the concrete design of participatory processes is key. This is true especially in contexts such as DLT-based services where the knowledge gap between designers and users (citizens, business users as well as some civil servants involved) can be wide. Fortunately, there exists a wide range of tried and tested approaches (see for example the [Participatory Technology Assessment approach](#) and [UN University's Participatory Methods Toolkit](#)) to do this, from interviews and mini-publics to FabLab sessions, foresight methods, on-site testing and ethnography.



Learnings and recommendations

The combination of such tools and their use in the different phases of service design and deployment requires intentional planning and allocation of resources. Attention should also be paid to how the processes are run, who is invited and feels welcome to participate. Using clear language, putting effort into recruiting a variety of stakeholders, and offering food as well as something like a possibility for child care for longer sessions can be factors that weigh in crucially for making sure different kinds of people can participate.

- Participatory methods and stakeholder involvement are key to ensure that DLT-based public services are critically assessed, tailored to local contexts and take into account the needs of service users. Make sure to allocate enough resources and create a detailed plan on how to incorporate participation in the different phases of the project.
- Diversity and allocating time for the recruitment of varied citizens and stakeholders is a cornerstone to make sure that participatory methods yield results that reflect the views of users more broadly. Recruitment and involvement of diverse participants may be time-consuming, but is a necessary step to make sure all views and voices are heard.
- There can be a large threshold for people to participate and use their time on something that seems very technical or that they can't see the value in immediately. To get people involved, make sure that language is clear and understandable, communicate the potential value of the service and consider offering food and refreshments.



Conclusion

Social inclusion in the context of DLT-based public services is not only about equal access to services, but a premise for a broader call for involving people in assessing what kinds of services should be developed and how they can best serve the people using them. On one hand, this has the potential to create better, fit for purpose services that people want to use because they solve a real need. On the other hand, involving people means taking into account the varied, actual experiences that people have and are able to give as input to the development of services. It means having a say on what should be developed and how.

This, of course, is easier said than done. Many acknowledge that ensuring accessibility, making sure information is understandable, providing training and skills to use services and partake in service development and designing thorough processes for participatory innovation are important and would result in better services. Yet, the reality of tight budgets, timelines and lack of skills also on the part of service developers are real obstacles.

For our part, we hope that this distillation of conversations from the TOKEN Policy Observatory session on social inclusion can at least begin to highlight the importance of these aspects and thus push for them to be considered in the design of DLT-based public service projects – in processes as well as budgets and ensuring that there is sufficient expertise around them.

Although all of the perspectives and recommendations around access and accessibility, GDPR and privacy, skills, capabilities and clear communication and participation and involving stakeholders are crucial, the discussions at the TOKEN Policy Observatory also had a few cross-cutting, widely repeated points of view.



Conclusion

To conclude this briefing paper, we wish to leave technology developers, civil servants, policy-makers and all those involved with DLT-based public service development with these calls for action:

- Work closely with people. From users to stakeholder groups and those working with the service in the public sector, the more people are involved, the better different perspectives can be taken into account in service development and deployment. This takes time and resources, but results in better services, more users and more inclusion.
- For users, use clear language and focus on function, value and benefits. Different levels of digital literacy, skills, interest and time available can make it hard for people to take up new services or be involved in their development. While it is vital that people can understand what the risks and concerns around a certain technology are, using technical terms can run counter to this.
- Share practices, experiences and learnings. There is an increasing amount of DLT projects also in the public sector, but often it can feel like the wheel is being reinvented again and again. Be it questions of GDPR in DLT-based services or best practices for participatory methods and social inclusion in general, use case descriptions, useful software and success and failures should be better collected together and shared in language that different people involved in setting up and running pilots around DLT-based public services can understand.



We hope that the insights and experiences collected together in this final briefing paper from the TOKEN Policy Observatory serve in themselves as a step in bringing together and spreading the word on lessons learned. As a whole, the TOKEN Policy Observatory – three years, five Observatory sessions and five briefing papers – has sought exactly this: to bring together policy-makers, technology developers, civil servants, researchers and forward looking thinkers to share lessons and experiences and work together to assess, scope and shape what fair, effective, trustworthy and inclusive DLT-based public services could and should be like. With this fifth and final Observatory briefing paper, the TOKEN project as a whole would like to thank all of those we have had the privilege of working with throughout the Observatory, TOKEN related events and the TOKEN project as a whole. We hope to continue the discussions and work towards ever better public services with you in the future.





Join the discussion and come work with us towards making the vision a reality.

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