Token

Vision for Trust-based Transformation Through Distributed Ledger Technology

TOKEN Policy Observatory Briefing Paper

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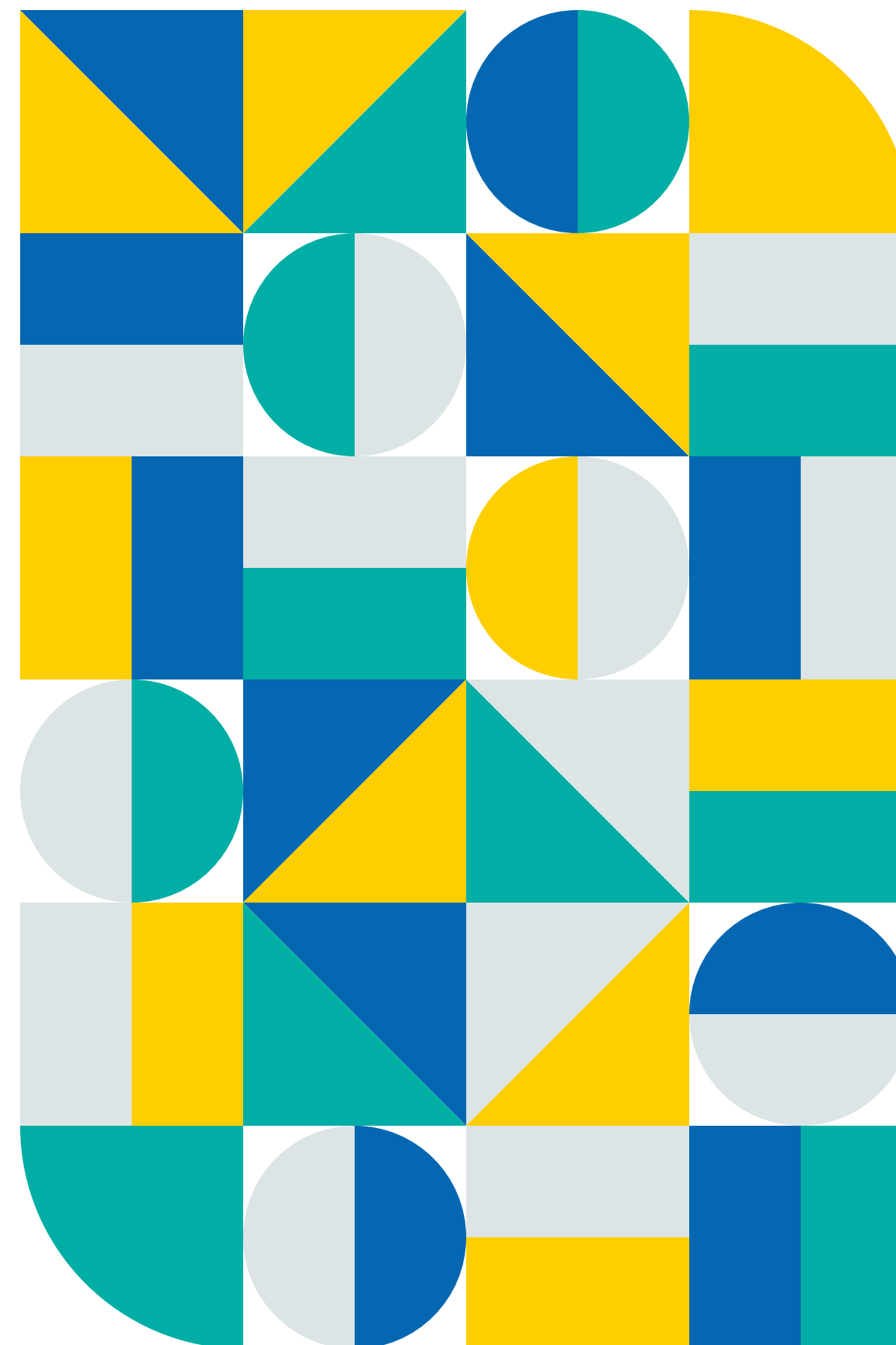
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For the reader

This briefing paper is **a reflection of the transformative role of distributed ledger technologies (DLT) in the public sector**.

It is a combination of a vision statement with the different constituent parts required to move towards the vision. **It aims to support policy-makers and civil servants all over the world** to understand the possibilities of DLT in transforming public services and administration.

Simultaneously, the paper seeks to identify the required changes in the public sector that would allow the use of DLT in meaningful ways in local contexts.

This briefing paper is a part of TOKEN, a European Union Horizon 2020-funded project working to explore the value of DLT in the public sector through the development of an experimental ecosystem.

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For the reader

KEY TAKEAWAYS

Distributed ledger technologies (DLT) create new opportunities to improve public sector capabilities to deliver services and answer long-term societal challenges, building societal trust.

To grasp these opportunities the public sector should focus on three shifts when implementing and utilising DLT-solutions:

- From privacy to data empowerment – developing not only privacy-by-design solutions, but also creating opportunities for people to know where their data goes, have a say in who uses it and enable the use of data for democratically validated purposes.
- From efficiency to a purpose-driven public sector – instead of solely increasing efficiency via DLT-solutions, focusing on the purposes of the operations of the public sector and creating pro-active, digital services based on life and business events.
- From transparency to accountability - building on top of the increase in transparency offered by DLT to define clear accountability structures and mechanisms for the public sector.

The realisation of these shifts requires a holistic approach for the public sector to systematically develop appropriate technology, new structures and processes, relevant skills and capabilities and a supportive culture and mindset to utilise new innovations. This requires efforts from a wide variety of societal actors, not only policy makers and technology innovators.

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Introduction

As distributed ledger technologies (DLT) such as blockchain gained prominence in the 2010s, it was touted as the answer to almost all problems, particularly within the public sector. Some examples of DLT in the public sector have found great success[1], with many more failing to even begin implementation.

Over time, applications of the technology have become more finely tuned, and it has become clear that the promises of what DLT can bring to the public sector are not just a question of technology, but something broader. In such situations, it is never about the technology itself, but rather the value it can bring[2]. It is an instrument of transformation, requiring increased trust and capabilities. In our time of on-going crises and grand-scale transformations, from ecological to social to political, eyes are turned more than ever towards different levels of the government to lead change while still providing the public services that are vital for a good and functioning society.

The promise of DLT – like any technology – is not to rewrite the purpose of the public sector, but to act in novel ways as an integral instrument to reach commonly set goals. In a time where trust in government capabilities is waning on a global scale[3], the possibilities of DLT could offer a means to rekindle confidence in the public sector by increasing capabilities to tackle the grand challenges of society, all the while improving the delivery of public services. This means not only technological development, but a holistic approach to how policy and practices within the public sector can develop to benefit from the technology itself.

The vision laid out in this briefing paper is based on the work and discussions of the first TOKEN Policy Observatory meeting in September 2020 and the joint efforts of the TOKEN project consortium before and after the Observatory meeting. We would like to thank the Observatory participants as well as the entire TOKEN community for their insights and inputs.

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1 For example, in Estonia, the land registry in the UK and in Italy;   2 OECD (2020). The uncertain promise of blockchain for government;   3 Edelman (2020). 2020 Edelman Trust Barometer

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Vision and Framework

The TOKEN Vision is built from three layers

1

Vision statement
The vision statement describes the long-term societal change we want to achieve. This is not the end-goal of the TOKEN project, but instead the goal we want to inspire different actors to contribute to, with TOKEN as the starting point.

2

Token Shifts
Three TOKEN shifts represent the desired directions and changes we wish the public sector to pursue utilising the potentials of DLT.

3

Building blocks
Building blocks are actions and changes that enable TOKEN shifts to happen and contribute to the desired public sector transformation.

Building blocks are split into four categories which should be developed concurrently:
1) structures and processes 2) culture and mindset 3) technologies and 4) skills and capabilities.

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1 | **Vision statement**

"Improved public sector capabilities to deliver services and answer to societal challenges increase societal trust."

Societal trust forms the base for well-functioning societies, the economy, democracy and government. This belief that at the core others can be trusted also has a dual relationship to governance: on one hand, effective governance especially in the time of crises (be they pandemics or ecological crises) is based on a feeling of mutual trust that also extends to the measures taken by government to address these challenges. On the other hand, it is up to governments to be worthy of this trust – to deliver on the mandate placed upon them by members of society.

Thus, at the center of societal trust is also trust in governments, which is in turn inextricably linked to the capabilities of governments to deliver, through the public sector, on the mandate given to them by citizens – to both tackle the challenges society is facing, and to provide services that make society function and increase wellbeing. Of course, citizens also need to be able to trust that the public sector is doing these in a way that is purposeful. Legitimacy requires accountability and possibilities for feedback and participation.

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1 Vision statement

DLT has the potential to move towards this vision: to improve the capabilities of government and the whole public sector to tackle societal challenges, to deliver better services, to increase accountability and to offer new ways of participation. Nevertheless, there is no silver bullet for building trust. Can DLT deliver on these promises? Who makes the rules under which DLT works and can we trust them?

These questions are vital to keep in mind as they highlight that, just like with any transformative technology, a vision must be combined with critical assessment and an approach that goes beyond the technology itself. To emphasise this and the multidimensional conditions that are needed in order to deliver on the promises of DLT and increased trust, we believe certain shifts and building blocks are required.
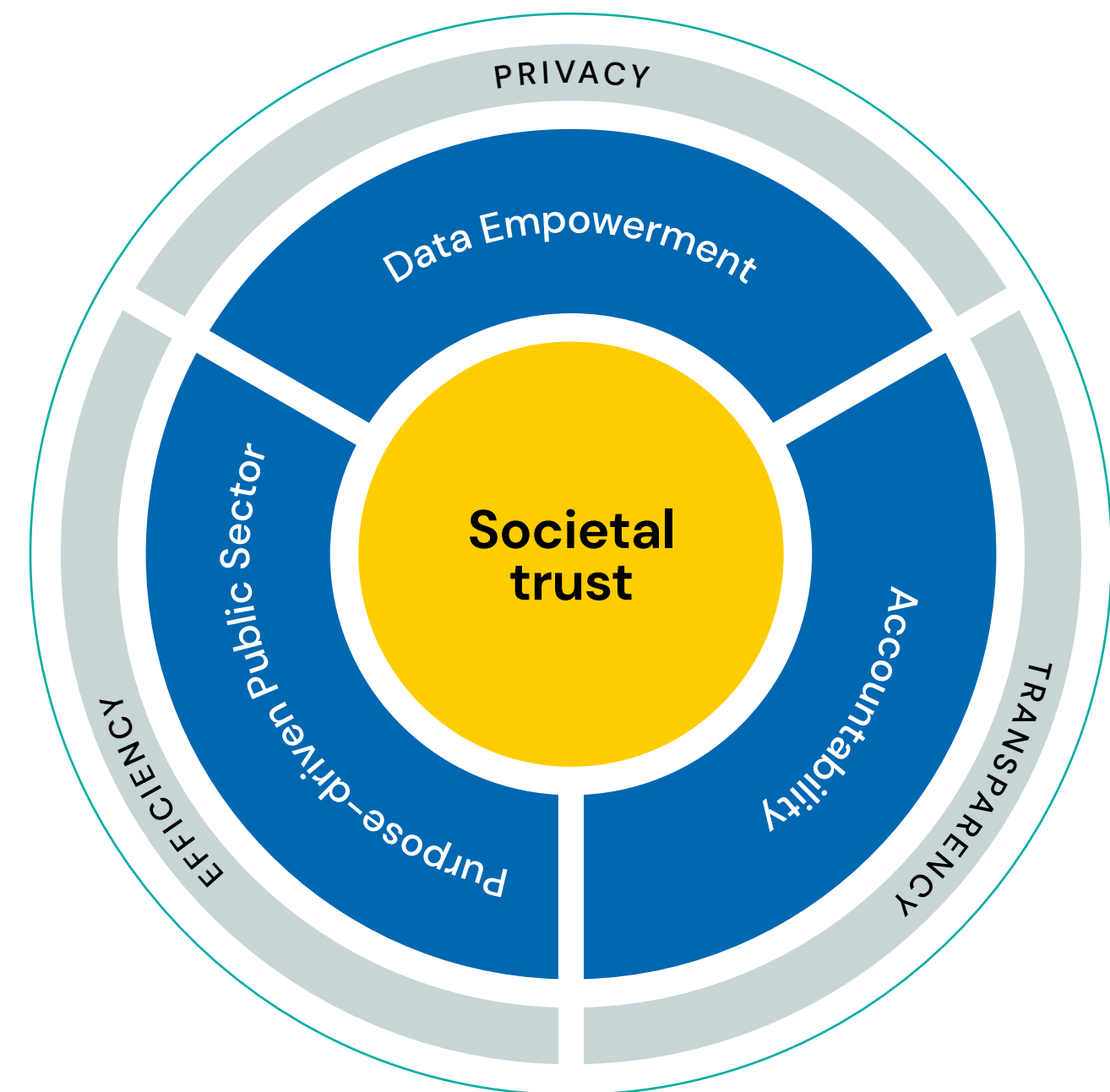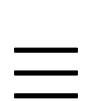

BUILDING BLOCKS

Structures & Processes   Skills & Capabilities   Technology   Societal Culture & Mindset

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TOKEN shifts enabling societal trust

From privacy-by-design
to data empowerment.

From efficiency
to purpose-driven
public sector.

From transparency
to accountability.

4 Cagigas, D., Clifton, J., Diaz-Fuentes, D., & Fernández-Gutiérrez, M. (2020). TOKEN Project Deliverable 4.1: Evaluation Framework on the Potential Implications of Blockchain in the Public Sector: A Systematic Review.
5 Swinhoe, D. (2020). The 15 biggest data breaches of the 21st century
6 Novak, S. (2011). Is there a Tension between Transparency and Efficiency in Decisions? The case of the Council of the EU
7 Erkkilä, T. (2020). Transparency in Public Administration

Distributed ledger technologies have the potential to increase trust through shifts in **privacy**, **efficiency** and **transparency**[4]. TOKEN shifts do not aim to replace these elements, but to change how they are approached. Public services should transition from privacy-by-design to a data empowerment model. Instead of a primary focus on efficiency, emphasis must be put on a purpose-driven public sector that enables participation in public service production. While transparency is vital for institutional trust, DLT allows for a more accountable public sector. When combined, these elements contribute to public sector capabilities that enhance societal trust.

In reality, the relationship between trust and these elements is complex. Often, they are in tension: efficiency can infringe on privacy[5]; transparency may hinder efficiency[6]; privacy and transparency can conflict[7]. One does not supersede the others. There must be give-and-take: a balancing act among the three. However, there is not one 'magic formula', as every situation requires a different configuration of the tensions.
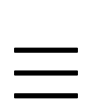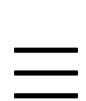
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TOKEN shifts

From privacy-by-design to data empowerment.

From efficiency
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Privacy-by-design, a foundation for trust in government, should be central in the development of any public service. However, as the importance of personal data in society expands, it becomes increasingly urgent to ensure individuals are not only able to understand and control their personal data, but also to benefit from it. Yet, one grand tension seems to be growing when digitalising the public sector: between the possibilities offered by the use of data and the privacy concerns of those creating the data. This tension must be solved when, for example, the need for pre-emptive health care services increases.

Focusing on privacy does not necessarily preclude data utilisation to enhance and develop quality public services. Instead of seeing data as a private good, processes such as anonymisation and data use consent could enable data to be seen as a democratically controlled commons. Data governance structures must protect privacy and offer people the right to know where their data goes, have a say in who uses it and enable the use of data for democratically validated purposes, resulting in data empowerment.

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TOKEN shifts

From privacy-by-design to data empowerment.

From efficiency to purpose-driven public sector.

From transparency to accountability.

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8 Kerry, C. & Morris, J. (2019). Why data ownership is the wrong approach to protecting privacy

9 CheckyMySchool: an example of data empowerment through collaboration in the Philippines

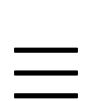**10** EBSI. Why should Europe strive for self-sovereign identities for its citizens.

11 Tomàs White, C. (2019). "Catalan government presents IdentiCAT decentralized digital identity project".

Actions such as

The development of new models of data commons or data trusts[8] that benefit both individuals and society at large

New innovations to support collaborative data usage enhancing opportunities for participation in public sector operations[9]

Development of self sovereign identity technology and services[10], such as the IdentiCAT program in development in Catalonia[11]

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TOKEN shifts

From privacy-by-design
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12 Berryhill, Bourgery, J.T. & Hanson, A. (2018). Blockchains Unchained.

13 OECD. (2009). "Current and Future Public Governance Challenges", in Government at a Glance.

14 Lodge, M., & Wegrich, K. (Eds.). (2014) The Problem-solving Capacity of the Modern State: Governance Challenges and Administrative Capacities.

15 Berryhill, Bourgery, J.T. & Hanson, A. (2018). Blockchains Unchained.

16 Margetts, H. & Dunleavy, P. (2013) The second wave of digital-era governance; Tavoite 2025. (2018)

Growing expectations of public services[12], ongoing fiscal constraints[13] and demographic changes[14] create challenges for delivering quality public services. Public services users are increasingly heterogeneous and there's a growing demand for lean processes in public services. Using DLT-based technologies, public organisations' processes could become more effective and accurate, freeing up human resources for more complex and qualitative tasks. In addition, DLT could remove bureaucratic red tape, leading to faster and cheaper services[15].

Nevertheless, before focusing on efficiency, public organisations need to re-define the purpose of their services and operations. The shift towards a purpose-driven public sector means building pro-active, digital services that could be based on the life- and business-events of citizens and organisations[16]. The determination of what services are provided and how should not lose its link to the public sector's mandate given by citizens. This means increased feedback and participation of the public in service development.
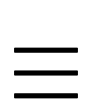
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TOKEN shifts

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Actions such as

Co-creation of services with users for digital services based on their life events

Streamlining communications and collaboration both internally within the government and with external actors[17]

Strengthening capabilities of sharing and utilising data in service production and capabilities of leading with data

Widening opportunities for voting, participation and interaction between public sector and people via DLT platforms

17 Digital Scotland. (2018). Distributed Ledger Technologies in Public Services

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2 | TOKEN shifts

From privacy–by–design
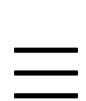to data empowerment.

From efficiency
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From transparency
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18 Erkkilä, T. (2020). Transparency in Public Administration. *Oxford Research Encyclopedia of Politics*.

19 Cagigas, D., Clifton, J., Diaz–Fuentes, D., & Fernández–Gutiérrez, M. (2020). TOKEN Project Deliverable D4.1: Evaluation Framework on the Potential Implications of Blockchain in the Public Sector: A Systematic Review.

Digitalisation and changing demands for democracies have made transparency key for contemporary public administrations. Transparency holds promises for increased democratisation and increasing citizen trust in government[18]. DLT–based solutions can be designed to increase transparency in systems, operations and processes – creating immutable and traceable tracks that allow monitoring by other actors (citizens, other public entities). This also creates the opportunity to track human rights and fair work practices[19].

Mere transparency, however, is not enough; it must be seen as a step towards building more accountability. This means focusing not only on transparent processes, but clear mechanisms for how they work and who is responsible for them. As the public sector has to deal more and more with cross–cutting phenomena, accountability requires transparency for results, a process of continuous improvement and communication with partners, stakeholders, and the public. Creating accountability through clear structures of liability, feedback and development is a cornerstone of good governance.

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2 TOKEN shifts

From privacy–by–design
to data empowerment.

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**From transparency
to accountability.**

Actions such as

Creation of accountability structures and defining roles, responsibilities and partnerships, on top of DLT–based solutions[20]

Reforms in policy to ease the use of data recorded in DLT to increase accountability, e.g. in public spending[21]

Education and raising public awareness on how to monitor and access accountability measures[22]

20 Filer, T. (2019). Thinking about GovTech: A brief guide for policymakers.

21 Allessie, D., Sobolewski, M., Vaccari, L., & Pignatelli, F. (2019).
Blockchain for digital government.

22 Digital Scotland. (2018). Distributed Ledger Technologies in Public Services

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Building blocks of change

For these shifts to occur, certain 'building blocks' must first be in place. Four domains have been identified to enable the development, adoption, implementation and acceptance of DLT–based transformations within public services.

These domains are:

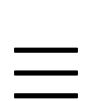**Structures and processes**

Skills and capabilities

Technology

 Societal culture and mindset

These domains, while relevant on a global scale, must be adapted to each context.

Token

Structures and processes

Skills and capabilities

Technology

Societal culture and mindset

Structures and processes refer to the policy and practice of the public sector, including legal frameworks and agendas[23]. Interoperability between systems is necessary for successful implementation[24]. Careful consideration must be given into what kinds of innovation is needed, and how it is regulated, supported, and integrated into public services, both in the current and an ideal system of governance – this includes the wisdom to assess when DLT is not the right approach.

Skills and capabilities include the abilities of actors on all levels to utilise technology and, for public servants, to properly fulfil their duties[25]. This requires the education of both public servants and citizens on how to use new platforms and on how to access them, what their value is, and what rights they have. Diversity and inclusion also play a major role, with diversity in expertise necessary to develop technology and inclusion highlighting the necessarily proactive role public administration must take in creating digital equity and services truly available for everyone.

23 Allessie, D., Sobolewski, M., Vaccari, L., & Pignatelli, F. (2019). Blockchain for digital government.

24 Cagigas, D., Clifton, J., Diaz-Fuentes, D., & Fernández-Gutiérrez, M. (2020). TOKEN Project Deliverable D4.1: Evaluation Framework on the Potential Implications of Blockchain in the Public Sector: A Systematic Review.

25 ibid.

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3 | Building blocks of change

23 Allessie, D., Sobolewski, M., Vaccari, L., & Pignatelli, F. (2019).
Blockchain for digital government.

24 Cagigas, D., Clifton, J., Diaz-Fuentes, D., & Fernández-Gutiérrez, M. (2020).
TOKEN Project Deliverable D4.1: Evaluation Framework on the Potential
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25 ibid.

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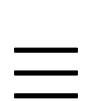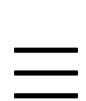
Structures and processes

Skills and capabilities

Technology

Societal culture and mindset

Technology must be designed with the intent to serve the public, including both forward-facing services and behind-the-scenes processes. While major advancements have already been made, further innovation is needed to meet the needs of cities. This means, for example, designing technology that tries to combat the current problems of high energy use of DLT, issues of security and scalability related to the decentralisation of data, and taking questions of accessibility and inclusion as a baseline for development.

Finally, societal culture and mindset require a shift in how the integration of new procedures into the public sector is viewed. Distrust is often the default in governmental or technological change – if one does not feel agency, understand the reasons behind change and have the possibility to influence and benefit from change, it is hard to see why that change should happen in the first place. Increased participation and agency of citizens and public servants alike can help in building a culture that not only enables smoother transitions, but ultimately better services.

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Let's bring the vision alive

In the era of interconnected crises and systemic challenges, we need to be able to strengthen societal trust. Without trust, the public sector is not able to solve long-term challenges nor serve our needs in shorter terms. Technologies such as DLT are not meant to replace trust, but rather – where applicable – they present possibilities to increase confidence in government processes through shifts in efficiency, privacy, and transparency, eventually contributing to the rebuilding of societal trust.

This will not be an easy transition. All transformation and innovation face challenges and criticisms, sometimes rightly so. To begin this process requires grappling with security challenges, conflicting national and international legal frameworks, and questions of financial and environmental cost. Once implemented, these updated services may have consequences for employment and accessibility of government services, possibly exacerbating inequalities. Highlighting these challenges is not meant to dissuade experimentation and exploration into DLT for public services, but to serve as a

reminder that the adoption of technology alone is not enough to solve the issues of trust. To fully benefit from DLT, the public sector needs a holistic approach to develop appropriate technology, new structures and processes, relevant skills and capabilities and a supportive culture and mindset – building blocks that enable the shifts described above.

This vision is a first draft of our vision of DLT in the public sector. It will be developed with an iterative process and to make it alive and adjustable we want to collaborate with you. Share your feedback, comments, ideas and join the DLT4gov community to co-create the vision further and move beyond it to its implementation. Desired change will be achieved only if the whole of society is equipped to envision and work together towards a better future.

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

Be part of the conversation and join the Community

JOIN DLT4GOV COMMUNITY

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De Logistiek VZW

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#trustworthiness   #transparency   #privacy   #efficiency

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