

# UnLocking the potential of digital disruption for responsible, sustainable and trusted urban decisions

## Abstract

Responsible deployment of disruptive technologies (DTs) such as Artificial Intelligence (AI), Cloud and Local Digital Twins for data-supported decision making must consider applying ethical principles of transparency, fairness and respect to how we use data. Done correctly, solutions can ensure privacy, autonomy and build the trust needed for digital decisions to unlock decisions, innovations and opportunities that benefit everyone. This policy brief aims at guiding public organisations in the trustworthy adoption of disruptive technologies with the aim to increase transparency towards both its internal and external stakeholders about how DTs and data are used, what are the fundamental decisional processes that are followed, and how the potential risks are identified and addressed.

## Key points

**The Public Sector should adopt an ethics-by-design approach to responsibly implement new digital policy making tools. This governance goes beyond privacy standards and legal factors to also include a focus on:**

- **digital culture - embedding ethical values**
- **digital inclusion - leaving no one behind**
- **digital cooperation - building trust and transparency**

## Introduction

Never before has the incredible potential of Disruptive Technology (DTs) to be a force for good been clearer than in the past 2 years. Amid a global pandemic that brought economies across the world to a standstill, new technologies enabled whole industries to restart, for people to connect, to keep critical public services running and even accelerate vaccine development.

As a result many Public Sector organisations across the globe have come to recognise the transformative potential of digital solutions including Artificial Intelligence (AI), Cloud and Digital Twins. Solutions that help policy makers extract intelligence and insights from large quantities of data and allow those who use them to augment their own human expertise for enhanced decision making. For example, where to best locate vaccine clinics; management of urban mobility and how to reduce urban air pollution.

Yet, in the excitement of unleashing new possibilities and innovations, it should be remembered that whilst these technologies do a lot of good, they do have the potential to be misused in ways that lead to (unintended) discrimination and bias.



**By blending technology and data with strong leadership, engagement and collaboration the value of digital technologies for better decision making can truly be UnLocked.**

Leveraging findings from real-life deployments of disruptive technologies for decision making, UnLock explores **three key areas of governance focus.**

The UnLock cluster believes that when technologies change the world, those that implement them have a responsibility to address the issues in the new world they help create. It's vital that the Public Sector stays at the forefront of the digital revolution to ensure they adopt appropriate ethical technology governance to protect people's rights and cause no harm.

## Case studies

### 1. Digital Culture - Embedding ethical values

Embracing the potential of digital solutions in an ethical way begins at home. The ETAPAS project recognises that the greatest resource a public administration has are its employee's. Their participation in the creation of an ethical culture at the workplace is essential for the functionality and credibility of a stable and trusted public sector.

New technologies should not be used to introduce more invasive forms of control of workplace behavior, since this can infringe on privacy and be dehumanizing, demoralizing, and destructive to the mental and physical health of workers. Instead, new technologies can and should be used to relieve public servants of routine work and make better use of their competences. If a new technology has an impact on the employees and their working conditions, then its introduction must be decided in a participative and co-creative process involving them and their organizations. Public servants should be offered the education and training needed to improve their skills in the ethical use and management of new technologies, with the twofold objective of upskilling and reskilling. They should also be made aware of their rights in relation to their own data, if these may be affected by their employer's use of disruptive technologies.

### 2. Digital Inclusion - Leaving no-one behind

Covid has shown us that the social and economic future of the planet requires everyone to have access to digital. Yet the demographic group that is rising fastest is the one that is often least likely to use new technologies - older people. The URBANAGE project is working to find ways to use technology to better include people in urban planning with the aim of creating more inclusive, age-friendly cities that work for all.



Engaging with older adults in urban co-design workshops in Flanders, Santander and Helsinki, URBANAGE found that in general older adults do not refuse the use of technology as generalised by popular culture, rather they tend to attach greater importance to its practical added value than other generations. The research found that there needs to be a strong and sufficient reason for older adults to turn away from more traditional modes of communication and engagement in neighborhood activities. Answering the question why it cannot be done in a traditional way or explaining the advantages of the new technology over the traditional alternatives is therefore recommended. This can be done by informing them about the practical benefits or the ease of use, and by helping them understand the technology (especially when the technology is still in the early adoption phase).


Findings also indicated that the need for social contact is a strong motivator for engagement in new technologies, and as a result it is strongly recommended to introduce and implement this element in a gamified way for increasing engagement and take-up.

However, it should be noted this approach is not a panacea to solving inclusion challenges. Technology is not a means to an end. Making older people feel valued by engaging them in co-creation processes to develop technology solutions for the challenges they face, rather than the challenges others assume for them, is the key to successful inclusion.

### **3. Digital Collaboration - Building trust and transparency**

The PoliVisu and subsequent DUET initiative harnesses the power of data and Cloud to advance policy development through the design, integration and implementation of trusted, scalable and transferable Digital Twins. To achieve the vision for data-driven, collaborative decision making, early emphasis was put into creating an ethical framework that helps to instigate greater trust and transparency.

DUET recommends that cities should strive to develop officials' ability to understand, interpret and use automated decision-making systems. They should understand at least the basics of the underlying algorithms and the data used through a targeted education and training programme.



Citizens should be informed about the fact that automated decisions are being taken about them and with the help of their data. To the extent possible, cities should strive to make sure that data subjects also understand the underlying algorithms, to the extent practicable.

Algorithms and automated decisions should be fair and proportional. They should not prejudice citizens. Even though some bias may be inherent in data, the algorithms and the data they use (or train on) should not create or perpetuate material biases (racial, ethnical, sexual, political, religious, etc.).

Deployed in Flanders, Athens and Pilsen, DUET puts great emphasis on human control and understanding. In any deployment of new technology, especially where AI is concerned, it's important to ensure the cities fully understand the capacities and limitations of the new system and are able to duly monitor its operation, so that signs of anomalies, dysfunctions and unexpected performance can be detected and addressed as soon as possible.

## Conclusions and Policy recommendations

Insights from the UnLock cluster of projects can help guide cities towards the creation of a trustworthy framework for the responsible deployment of new technologies for decision-making support, taking into account ethical, social and legal considerations.

This framework should consist of a set of rules, governance mechanisms and tools aimed at guiding the design, development and deployment of DTs which deliver benefits whilst protecting the human rights of all citizens.

UnLock can provide **support for this ethics-by-design process** in three ways:

- 1) The ETAPAS project provides a Code of Conduct which includes ten fundamental principles to guide the correct implementation of disruptive technologies. As additional support, ETAPAS also provides a risk framework with a detailed mapping of all the risks public bodies might encounter when adopting DTs. In particular, it identifies eight risk categories which can be traced back to the 10 ethical principles of the Code of Conduct.

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**Learn more about the**  
**UnLock's Cluster projects:**

**DUET**  
[citytwin.eu](http://citytwin.eu)  
[digitalurbantwins.eu](http://digitalurbantwins.eu)

**ETAPAS**  
[etapasproject.eu](http://etapasproject.eu)

**PoliVisu**  
[polivisu.eu](http://polivisu.eu)

**URBANAGE**  
[urbanage.eu](http://urbanage.eu)



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2) URBANAGE provides a set of citizen engagement guidelines for the inclusion of older adults in public sector practices and digital tool use. Input to the guidelines came from both academic research and focus groups with 33 older adults in the cities of Santander in Spain, Helsinki in Finland and the region of Flanders in Belgium. The guidelines provide practical recommendations for managing expectations and providing motivation for older members of society in order to leverage their vast experiences for more sustainable urban planning.

3) DUET shares real-life Digital Twin simulations and case studies from Flanders, Athens and Pilsen to showcase how data-driven decisions can be created and used for collaborative policy exploration and experimentation. These simulations are all underpinned by a set of Ethical Principles for broad consideration by public sector Digital Twin projects. The principles were derived from smart city desk research, DUET pilot and partner interviews and extrapolation from high level, legal requirements and standards.

These three resources will help public sector organisations consider what to include in their own Trust Framework so it may support them to effectively improve trust, reduce risks, obtain efficiencies, and adopt DTs in a more fair and transparent way that:

- Facilitates an ethical digital culture
- Ensures everyone is able to participate
- Builds trust in the technologies and their results

## Bibliography

- ETAPAS Code of Conduct for DTS
- URBANAGE User Engagement Infographic
- DUET Ethical Principles for Data Driven Decisions