**European Parliament**

# Artificial Intelligence and Urban Development

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Artificial intelligence (AI), signifying human-like cognitive capabilities as performed by machines, is expected to bring about deep transformations in peoples' daily lives. High expectations have been placed on AI in an urban context. While there are debates around the pros and cons of AI in general, there is less discussion of the specific impact of AI on cohesion within and between urban areas.

AI **contributes to the full realisation of the smart-city model.** (Not all smart cities are necessarily AI-based.)

## Main observations

**Artificial Intelligence (AI)** in an urban context can provide **numerous solutions** in different areas, ranging from improved urban management and support for decision-making, to the release of new or improved services for citizens and the creation of new economic opportunities. **AI within smart cities** can exercise **a far-reaching impact in numerous areas of application**. Many of these areas are critical for city management and urban development, and include local government, health, safety, mobility and energy. AI is expected to facilitate efficiency gains, better governance, democratic engagement, and improved environmental sustainability.

The application of AI in urban development is **fraught with a number of risks**. First, the **handling of private data** incurs security and privacy risks. **Performance risks** refer to the so-called **black-box effect** created by self-learning AI algorithms, which can generate or reproduce bias and lead to unfair decisions. Other **risks** are of an **economic nature**, such as the controversial displacement effect of AI (job destruction vs. net job-creation effect).

These different risks, to varying extents, can **jeopardise socio-economic and territorial cohesion**. There are

**The study**

explores the state of available knowledge regarding the role of Artificial Intelligence (AI) within urban development, its potential advantages and risks, and the foreseeable implications for socio-economic and territorial cohesion.

two broad types of risks specifically related to AI from an urban/territorial perspective, namely those pertaining **primarily to social and economic cohesion within cities** and risks to **territorial cohesion between cities, and between cities and rural areas in particular.**



In the face of the expected advantages, and potential risks, of AI as deployed in cities, **there is a lack of systematic evidence about the territorial impact of AI in an urban context.** There has been *even less* focus on the subject in the context of rural-urban relations.

To mitigate risks and seize the potential of AI, urban authorities must ensure that **a series of necessary conditions are met.** These range from data access, interoperability and legal frameworks to more intangible elements, including an appropriate governance structure, administrative capacity and relevant skills. A further essential condition is that **citizens should actively participate** in the development of AI-based smart cities, to design adapted solutions and generate the **necessary trust and familiarity with AI.**

**The policies adopted by the European Union (EU) can make a decisive contribution towards the fulfilment of these conditions.** The EU has been developing numerous initiatives linked to AI in smart cities, mostly based on networking, partnerships and the diffusion of good practice. Cohesion Policy also contributes to a significant share of investments and interventions in the

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area, even if this is **not always visible or coherently measured.** Nevertheless, two promising initiatives concerning AI for urban development are **Digital Innovation Hubs** and **Smart Specialisation Strategies,** both of which integrate a territorial dimension and usefully support local and urban authorities.
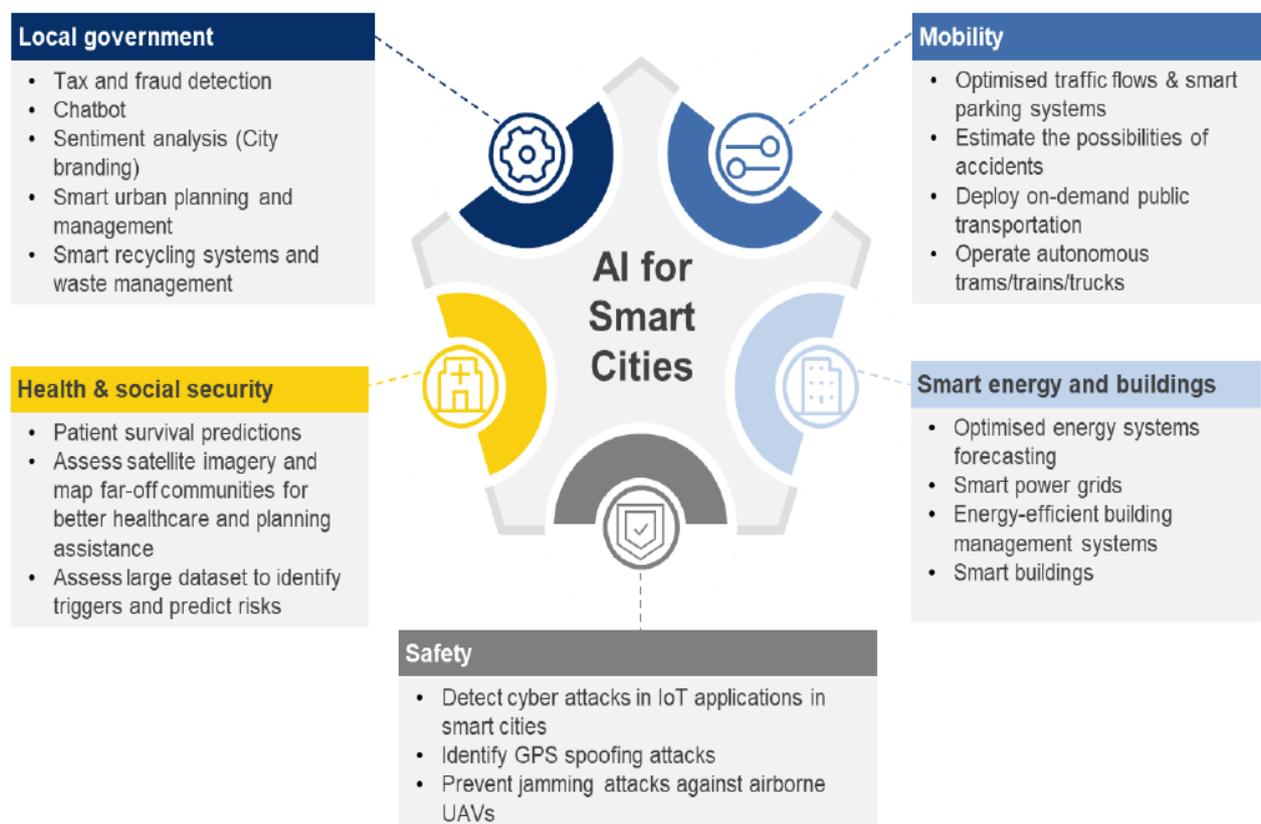
## Conclusions and policy recommendations

This study argues **in favour of a place-based approach** to AI in an urban context, focusing on the needs of citizens and addressing the diversity of cases and contexts. More specific recommendations include the following:

- **Mobilise Cohesion Policy effectively and explicitly to address AI in an urban context;**

- **Explicitly integrate considerations vis-à-vis AI** in smart cities into strategic and programming documents that underpin Cohesion Policy at Member State level;

- Encourage a shift from experimentation to **scaling-up smart-city initiatives;**

- **Improve the monitoring system** for Cohesion Policy, better to account for the use of AI in an urban context;

- **Coordinate the different EU initiatives in favour of AI in cities within the Urban Agenda;**

- **Consolidate a knowledge base** regarding AI in an urban context, in order to improve policy-making;

- **Mobilise Digital Innovation Hubs** to support local and urban authorities in rolling out effective AI and smart-city strategies;

- **Foster awareness among citizens** regarding the enormous potential, but also the concrete risks, around AI and city development.

**AI for smart cities**



**Local government**
- Tax and fraud detection
- Chatbot
- Sentiment analysis (City branding)
- Smart urban planning and management
- Smart recycling systems and waste management

**Mobility**
- Optimised traffic flows & smart parking systems
- Estimate the possibilities of accidents
- Deploy on-demand public transportation
- Operate autonomous trams/trains/trucks

**Health & social security**
- Patient survival predictions
- Assess satellite imagery and map far-off communities for better healthcare and planning assistance
- Assess large dataset to identify triggers and predict risks

**Smart energy and buildings**
- Optimised energy systems forecasting
- Smart power grids
- Energy-efficient building management systems
- Smart buildings

**Safety**
- Detect cyber attacks in IoT applications in smart cities
- Identify GPS spoofing attacks
- Prevent jamming attacks against airborne UAVs

**AI for Smart Cities**

*Source: European Commission, 2020a*