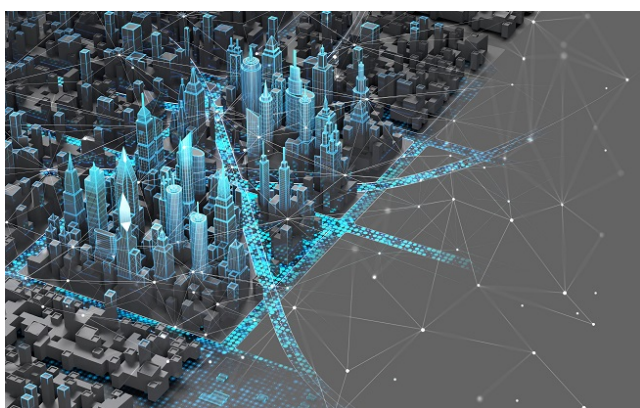


## Research for REGI Committee – Artificial Intelligence and Urban Development

### Background and objective



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

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

### Main findings

AI-based technologies are still at an early stage of development, within which AI systems perform narrowly defined tasks driven by data analysis. Recent progress includes the development of machine-learning algorithms that can self-improve without detailed instructions from humans. When combined with other digital technologies (Big Data, Internet of Things, Cloud and telecommunication infrastructure) in an urban context, AI can unite and synergetically exploit the huge amount of data produced by normal city life. This is a prerequisite for the full exploitation of interconnectivity, i.e., an integrated system whereby data from different sources are combined to produce meaningful information. As such, AI **contributes to the full realisation of the smart-city model**. There is no single definition of what a smart city is, but it generally refers to an integrated set of initiatives aimed at using digital technologies, including AI, to improve well-being and quality of life. Not all smart cities are necessarily AI-based, although the most advanced ones typically are.

The present document is the executive summary of the study on Artificial Intelligence and Urban Development. The full study, which is available in English can be downloaded at: <https://bit.ly/3jO4Nof>

Nonetheless, the smart-city concept is broader than the concept of a digitalised city. It requires that mechanisms be in place to “govern” technological developments, such as citizen participation.

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**. Thus, 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 (but are not restricted to): local government, health, safety, mobility and energy. *Inter alia*, AI is expected to facilitate efficiency gains, better governance, democratic engagement, and improved environmental sustainability.

Nevertheless, the application of AI in urban development is **fraught with a number of risks**, some of which are common to other digital technologies. First, the handling of private data incurs security and privacy risks. Performance risks, meanwhile, 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 cited risks are of an economic nature, such as the controversial displacement effect of AI (job destruction as the result of automation vs. net job-creation effect as the result of new economic activities and creative destruction).

These different risks, to varying extents, can **jeopardise socio-economic and territorial cohesion**. There are two broad types of risk specifically related to AI from an urban/territorial perspective, namely those pertaining **primarily to social and economic cohesion within cities** on the one hand, and on the other, risks to **territorial cohesion between cities, and between cities and rural areas in particular**. For example, displacement effects impact the most vulnerable workers, and this problem may in turn have a territorial dimension, if the inhabitants negatively affected are concentrated in specific districts or neighbourhoods. Moreover, biases that are apparently technical in essence can bring about unwanted (or even intentional) discrimination at the expense of the most fragile populations, with possible negative consequences for cohesion *within* towns. The development of AI can also negatively affect cohesion *between* towns – notably, between those enjoying the benefits of smart-city status and those without the capacity to deploy AI solutions. It may also jeopardise cohesion between towns and their surrounding (rural) areas, if the frontier of the smart city abruptly falls between the two, or in case of adverse impact on the surrounding areas, creating a digital divide.

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, which can be expected to be significantly impacted by the diffusion of AI solutions. Hence, apart from the experience of a few frontrunners (generally large and advanced cities), **there is still little evidence (so far) that the positive effects of the smart-city paradigm, as powered by AI, will actually materialise on a large scale**.

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. Furthermore, Cohesion Policy contributes to a significant share of investments and interventions in

the area, even if this is **not always visible or coherently measured**. Nevertheless, the **overarching strategic approach of the EU regarding AI is largely oblivious to territorial and urban issues**. In general, moreover, it is difficult to engage in “policy learning” or to leverage policy achievements. 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 in rolling out effective AI / smart-city strategies.

## Conclusions and 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. The urban level is the optimal level to facilitate both citizens’ engagement *and* collaborative partnerships. Such an approach also makes it possible to engage all the relevant levels of governance (i.e., not only urban authorities, but also authorities at regional, national and EU levels) and to mobilise the relevant knowledge and skills necessary to reap the benefits of AI and minimise risks. More specific recommendations include the following:

- **Mobilise Cohesion Policy effectively and explicitly to address AI in an urban context.** The REGI Committee of the European Parliament should call on the Commission to ensure that the following aspects are adequately addressed during negotiations with Member States:
  - **Explicitly integrate considerations vis-à-vis AI within 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.

The European Parliament should also contribute to the following efforts:

- **Coordinate the different EU initiatives in favour of AI in cities within the Urban Agenda**;
- **Consolidate a knowledge base** concerning the benefits and risks of AI for urban development. Moreover, a methodology for assessing benefits and risks of AI for territorial cohesion in an urban setting should be consolidated in the context of the update of the Better Regulation Guideline;
- **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. This can be done through appropriate education and awareness-raising campaigns at the initiative of the European Parliament.

## Further information

This executive summary is available in the following languages: English, French, German, Italian and Spanish. The study, which is available in English, and the summaries can be downloaded at: <https://bit.ly/3jO4Nof>

More information on Policy Department research for REGI: <https://research4committees.blog/regi/>



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