

## Building Sustainable Cities and Communities with AI

*Advanced technologies like AI can help governments accelerate the transition towards a greener, more inclusive and sustainable society*

While some governments and organizations have made strides in achieving their green initiatives, it has increasingly become clear that advanced technologies like AI will play a significant role in advancing sustainable development. In fact, a [recent research](#) article published in Nature revealed that AI has the potential to help countries achieve 79% of the targets outlined with the Sustainable Development Goals (SDG) through technological improvement.<sup>1</sup>

These targets include eliminating poverty, improving education quality, increasing access to clean water and sanitation, enabling affordable and clean energy, and creating smarter cities that utilize resources more efficiently. This means that AI can help governments build sustainable cities and communities that support social, economic, and environmental balance.

However, governments that opt to leverage AI will need to ensure they do so responsibly by safeguarding citizen privacy, ensuring transparency, and eliminating bias that can lead to discrimination.

### The Vast Potential of AI to Advance Sustainability

AI boosts human-machine collaboration. With human-like levels of intelligence, the technology mimics the problem-solving, decision-making, and self-learning capabilities of humans. This allows machines to automate mundane tasks and augment the ability of humans to solve complex problems. These aspects of AI are instrumental in its ability to help municipalities greatly increase the effectiveness and efficiencies of their operations.

With AI, for example, government agencies can anticipate the future demands of their citizens and adjust their operations and resource allocation to more effectively meet their needs. For instance, agencies can monitor water consumption during different seasons or distinct times of the day to predict future spikes and dips in demand and adjust supply accordingly.

Government departments can also leverage AI to automate tedious and time-consuming tasks in order to free up time for civil service workers to focus on more high-value work that requires greater levels of intelligence, creativity and human interaction. This can help reduce the existing backlogs of documents that require processing, such as claims applications, while still ensuring that a person makes the final decision.

Cities can also leverage AI to monitor the performance of their physical assets and infrastructure in real time, in order to detect possible defects and estimate when maintenance will be required. This helps cities ensure that all assets are fully functional, while maximizing lifespan, optimizing resource allocation and minimizing the risk of failure and the costs for repairs.

To ensure that citizens have access to safe and affordable housing, city officials can improve urban planning by running digital simulations using AI to site and build more cost-effective housing units. AI can also help streamline the construction of housing units by enabling cities to accurately model and test complex structures and predict the optimal resources required before they are built in the real world.

These are just a few of the many scalable ways in which AI can enhance city operations and the lives of communities. However, AI adoption and innovation in the public sector is still lagging behind the private sector. By collaborating with technology companies, governments can accelerate their adoption of AI while ensuring transparency and fairness.

## Accelerating AI Innovation Through Public-Private Partnerships

Technology companies like Hayden AI are helping governments accelerate and scale AI innovation in their operations to more quickly achieve their SDG goals.

The company's smart traffic enforcement platform is enabling municipalities to more effectively and efficiently enforce traffic laws to help improve road safety as well as transit performance and accessibility.

Hayden AI empowers governments to streamline the capturing and enforcement of traffic violations using AI. The company's platform automatically creates high precision evidence packages with a 180-degree video clip of the violation, license plate details of the potential transgressor, and other relevant metadata to help improve the productivity of the enforcement officer.

Through its smart enforcement platform, Hayden AI helps scale the amount of traffic violations captured and reduce road congestion and carbon emissions, while ensuring safe transit access for people of all ages and abilities and more efficient municipal services such as street sweeping.

The company's suite of smart traffic enforcement solutions is highly beneficial for cities that are implementing sustainability initiatives such as Vision Zero and Complete Streets, which are designed and operated to reduce traffic violence and enable safe and equitable mobility for all travelers, including pedestrians, bicyclists, public transportation riders, and drivers. Using the Hayden AI platform, these cities can ensure safe access to designated public transit lanes, protected bike paths, and safer, more walkable pathways for pedestrians.

Hayden AI also recently introduced a platform that combines AI with digital twin technology to help cities create dynamic, virtual replicas of their assets and infrastructure in order to optimize performance, predict maintenance needs, and model the impact of policy changes. According to a recent survey by Capgemini Research Institute, 60% of the world's leading organizations are already investing in digital twins to improve sustainability, with some implementing the technology at scale to understand and anticipate their carbon emissions and energy consumption, which can be of benefit to cities too.<sup>2</sup>

To ensure that its solutions are developed responsibly, Hayden AI collaborates with domain experts and technical experts to enhance the capabilities of its AI-powered systems by better understanding the problem and the requirements of the end user. The company also has an AI Ethics Board that holds it accountable, helping to ensure that all of its solutions are developed without any form of bias.

In order to ensure that government agencies utilizing its platform are protecting the privacy of their citizens, Hayden AI uses edge AI processing to limit the amount of data sent to the cloud server for processing. The company has also designed a data chain that leverages blockchain technology to ensure transparent and auditable transfer of its high precision evidence packages of traffic violations.

## Achieving Sustainability with AI Responsibly

AI has tremendous potential to accelerate the progress towards sustainable cities and communities through scalable and innovative solutions. In order to accelerate the adoption of AI and harness the full potential of the technology, governments can collaborate with technology companies like Hayden AI that already have the skills and expertise.

However, public agencies will need to ensure that the companies they partner with are taking adequate measures to ensure that there are no gaps in transparency, safety, or ethical standards.

1. <https://www.nature.com/articles/s41467-019-14108-y>
2. <https://www.capgemini.com/gb-en/research/digital-twins/>