

# HACHIOJI CITY — UTILISING 3D CITY MODELS AND AUGMENTED REALITY TO ENHANCE LOCAL PUBLIC ENGAGEMENT

## Hachioji City, Japan—

- To support public engagement during the planning phase of the renovation of a public waste facility, Hachioji City (Japan), adopted a novel approach that included combined augmented reality technology with 3D city models to allow workshop participants to visualise renovation ideas, fostering interactive discussion.
- The success of the workshop was highlighted by its ability to attract a diverse age group, ranging from 20 to 60 years old, which shows the potential of using new technology to attract broader citizen participation in urban planning processes.
- The workshop received a positive reception, with nearly 90% of participants expressing optimism about the future integration of Extended Reality (XR) technology, indicating a growing acceptance of innovative tools in urban planning.

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### ● Keyword

Themes: Economic and community development | Tags: Inclusion, Place-based revitalisation, Innovation | Geographic scale: City / metropolitan area, Region / State, Country

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### ● Countries

[Japan](#)

## What are the objectives?

**Closure of the Kitano sewage treatment plant in Hachioji City created opportunities for land redevelopment.** The sewage treatment plant was decommissioned in 2021, freeing up more than 7 hectares of land available for public use. The local government of Hachioji City, a suburb of Tokyo with more than half a million residents, took the opportunity to engage with the local community and develop renovation plans for the newly available space.

**Hachioji City’s Creative Workshop offered a distinctive approach for community engagement compared to traditional planning workshops to help attract a wider audience for consultation.**

Held in 2022, in partnership with the private sector, the workshop aimed to increase and diversify citizen’s participation by utilising 3D city models and augmented reality (AR) technology to create an interactive and accessible planning session. This new approach contrasted with more traditional approaches based on 2D or 3D schematic drawings that were more difficult to contextualise and harder to engage with. Traditional planning workshops tended to mostly attract an older demographic.

## How does it work in practice?

**The workshop utilised 3D city models – or ‘digital twins’ – to visualise the redevelopment area.** To support this, a 3D representation of the built environment was developed through various sources, including 2D map data of buildings and roads, and 3D data of building heights and shapes. To provide a comprehensive dataset, these data were combined with data from the Urban Planning Basic Survey, such as the current status of land and building age. Based on this 3D model, software could then be used to help to visualise the 3D model in an interactive way, including by highlighting flood-prone areas, building age and land use. This could help participants to better understand challenges and opportunities related to the redevelopment area.

**Participants used augmented reality technology to visualise their renovation ideas onto a map.** Citizens discussed their visions for the redevelopment of the area and tested these ideas by placing holograms of buildings and parks onto 3D maps. The visual representation facilitated an intuitive understanding of various proposals and encouraged on-site idea exchange, transforming the planning process into a more dynamic and participatory experience. The city incorporated these views in its development strategy, published in June 2023.

**The adoption of ‘digital twins’ by local governments in Japan is supported by the central government and the private sector.** To facilitate the adoption of ‘digital twin’ software, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) has supported the developed of a standardised open data platform – PLATEAU. The main users of the platform are local governments and the private sector.

## What has been the impact?

**The workshop received strong positive feedback and attracted a younger demographic than traditional planning events.** Over half of the participants appreciating the functional ease of using 3D models and AR, and nearly 90% expressing optimism about the future integration of XR technology. This suggests a growing acceptance of innovative tools in planning workshops. The

demographics of participants across various age groups were more diverse compared to traditional projects: ranging from 20 to 60, with a significant representation from individuals between 20-40 years old, which is a group that is typically underrepresented in traditional planning processes. The workshop demonstrated how embracing innovative technologies may lead to a more inclusive representation of community perspectives in urban planning processes.

**The promises of this new technology have inspired other cities in Japan to experiment with their public planning processes.** For example, the coastal town of Hokota City in Ibaraki Prefecture, has explored the use of 3D city models in planning workshops to allow participants to simulate the effects of redevelopment proposals and exchange ideas based on them.

## What can other communities learn from this example?

- Utilising 3D city models and XR can improve the communication of development plans, making complex planning proposals more accessible for residents.
- Adopting new technology can increase citizen involvement in investment decisions and contribute to a more inclusive representation of urban planning initiatives.
- Programmes for supporting the adoption of technology such as the PLATEAU open data platform, as well as private sector partnerships, can aid local governments to scale-up their administrative capability to benefit from the use of innovative technology.

## Further information

- Ministry of Land, Infrastructure, Transport and Tourism (MLIT): [Participatory urban development using XR technology](#) (in Japanese)
- Ministry of Land, Infrastructure, Transport and Tourism (MLIT): [Participatory urban development using XR technology v2.0](#) (in Japanese)

## OECD resources

OECD (2023), *Financing Cities of Tomorrow: G20/OECD Report for the G20 Infrastructure Working Group under the Indian Presidency*, OECD Publishing, Paris, <https://doi.org/10.1787/51bd124a-en>.

OECD (2022), *G20-OECD Policy Toolkit to Mobilise Funding and Financing for Inclusive and Quality Infrastructure Investment in Regions and Cities*, OECD Publishing, Paris, <https://doi.org/10.1787/99169ac9-en>.

OECD (2022), "Making the most of public investment to address regional inequalities, megatrends and future shocks", *OECD Regional Development Papers*, No. 29, OECD Publishing, Paris, <https://doi.org/10.1787/8a1fb523-en>.

OECD (2021), *Unlocking infrastructure investment: Innovative funding and financing in regions and cities*, OECD Publishing, Paris, <https://doi.org/10.1787/9152902b-en>.

OECD (2020), OECD Compendium of Policy Good Practices for Quality Infrastructure Investment, <https://www.oecd.org/finance/oecd-compendium-of-policy-good-practices-for-quality-infrastructure-investment.htm>

OECD Recommendation on Effective Public Investment Across Levels of Government | [Online Toolkit](#) | [Monitoring report](#) | [Implementation brochure](#)