

Dongming Road metaverse digital community engaging youth in smart governance

Region	Asia and the Pacific
Award Scheme	Shanghai Manual
Themes	Local Govts & decentralization Social Inclusion Urban Governance and Legal Frameworks Youth & Livelihoods
Sustainable Development Goals	Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable Goal 16 - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Summary

The Dongming Road Subdistrict in Pudong, Shanghai, has developed an innovative metaverse-based digital community to strengthen participatory urban governance in a super-aged context. Implemented in partnership with the social organization Huimingxin, the initiative established the Huimingxin Neighbourhood Development Service Centre, integrating online and offline civic participation through a three-layer digital governance framework: visual, computational, and relational. The visual layer uses digital twin and augmented reality technologies to enhance access to community information, cultural heritage, and local spaces, encouraging engagement among both young and elderly residents. The computational layer supports neighbourhood economic vitality through a location-based digital coupon system that automates incentives and provides real-time analytics for local merchants. The relational layer applies blockchain-based NFT digital badges to recognize community participation and foster youth leadership in local governance. Since 2023, the project has engaged over 3,000 residents, generated 1,287 citizen proposals, and contributed to 32 implemented community improvements. The initiative demonstrates how emerging digital technologies can advance the New Urban Agenda’s goals of inclusivity, innovation, and participatory governance by promoting community self-organization and “intelligence in proximity,” where technology serves social connection and local empowerment.

Background and Objective

Since 2020, China has made the development of a digital society a national priority, positioning technology as a driver of modernization in social governance. Within this policy context, the concept of the digital community has emerged as a practical model for applying digital tools at the neighbourhood level to enhance civic participation and local service delivery. The Dongming Road Subdistrict in Pudong, Shanghai, faces the dual challenge of an aging population and limited youth engagement in community life. Although many young residents live in the area, their work outside the subdistrict results in limited interaction with local governance and social activities. At the same time, local businesses struggle with

low visibility and fluctuating customer traffic. In response, the subdistrict government and the social organization Huimingxin launched an initiative to test how emerging technologies such as the metaverse, augmented reality, and blockchain could be applied to community management, intergenerational inclusion, and neighbourhood economic revitalization. The project seeks to use digital innovation to strengthen social cohesion and participatory governance. Its objectives are to improve access to information through immersive and inclusive digital platforms, promote community engagement among youth and older residents, support local businesses through data-driven tools, and create a transparent digital identity system that recognizes and incentivizes citizen participation in community decision-making.

Actions and Implementation

To respond to the community's needs, the Dongming Road Subdistrict partnered with the social organization Huimingxin to establish the Huimingxin Neighbourhood Development Service Centre in 2023. This public space serves as the physical and digital hub of the initiative, linking residents, local businesses, and governance bodies through an integrated metaverse interface. The project was implemented through a three-layer digital governance system designed to connect visual access, automated operations, and relational engagement. The visual layer employs digital twin and augmented reality technologies to create a virtual replica of the neighbourhood, allowing residents to access community news, event information, and cultural heritage content through interactive 3D displays. This has made local governance and history more accessible, particularly to young people and older residents who can participate remotely or through on-site installations. The computational layer introduces a location-based digital coupon system that supports local commerce. Using automated geofencing and mobile applications, residents receive digital incentives when visiting neighbourhood businesses, while merchants access real-time data on customer engagement. The relational layer builds a blockchain-based NFT badge system to recognize civic participation. Residents earn digital badges for contributing to community projects, volunteering, or submitting proposals. These badges create verifiable digital identities and foster a sense of belonging and accountability among participants. Through this structure, the initiative integrates online and offline community life, enabling flexible participation and reinforcing the role of digital tools in supporting inclusive, localized governance.

Outcomes and Impacts

The Dongming Road metaverse digital community has strengthened local governance, participation, and economic vitality. Since its launch, over 3,000 residents have engaged in more than 1,200 community proposals, with several implemented to improve public spaces, senior facilities, and local activities. The use of NFT digital badges has incentivized civic participation, while digital twin and AR tools have enhanced cultural awareness and intergenerational connection. The automated coupon system has

increased customer traffic and supported small businesses. Overall, the project demonstrates how community-driven digital transformation can enhance inclusivity, transparency, and social cohesion in an aging urban neighbourhood.

Sustainability and Scalability

The Dongming Road digital community model is designed for long-term sustainability through community ownership and integration into existing governance structures. Its technological framework relies on open, adaptable systems—such as blockchain and digital twins—that can be maintained and scaled without heavy infrastructure costs. Capacity building through the Huimingxin Neighbourhood Development Service Centre ensures ongoing digital literacy and resident engagement. The model’s scalability has already been demonstrated through its adoption in other Shanghai subdistricts, including Changning, Fengxian, Huangpu, and Putuo. By aligning technological innovation with local needs, the initiative offers a replicable approach to inclusive, community-led digital governance.

Gender and Social Inclusivity

The Dongming Road initiative promotes gender and social inclusivity by ensuring equitable access to digital tools and community participation. Its hybrid online–offline model enables both women and men, regardless of age or working hours, to engage in governance and cultural activities. Augmented reality heritage projects connect older residents and youth, fostering intergenerational dialogue, while “phygital” art exhibitions empower elderly women artisans to showcase traditional crafts in digital form. The digital badge system recognizes all forms of civic contribution equally, encouraging participation from diverse social groups. Overall, the project enhances inclusion across gender, age, and digital literacy levels.

Innovative Initiative

The Dongming Road initiative is innovative in its integration of metaverse technologies into community governance. By combining digital twins, augmented reality, and blockchain within a single participatory framework, it transforms how residents interact with their neighbourhood and local authorities. The project’s three-layer model—visual, computational, and relational—links governance transparency, local economic activity, and civic identity in one system. Its use of NFT digital badges to formalize community participation represents a pioneering application of blockchain in urban governance. This approach redefines digitalization as a tool for collective empowerment rather than commercial expansion, creating a replicable model of citizen-centred smart governance.

Resources devoted to delivery

The implementation of the Dongming Road metaverse digital community was supported through collaboration between the Dongming Road Subdistrict Office and the social organization Huimingxin. Resources included municipal funding for digital infrastructure, community spaces, and technology integration, alongside technical support from academic and private sector partners. The Huimingxin Neighbourhood Development Service Centre serves as the operational hub, managing program delivery, resident training, and maintenance of digital platforms. Human resources include local government staff, social workers, and youth volunteers, ensuring both technical and social dimensions of the project are sustained. This multi-stakeholder approach optimizes existing resources for inclusive and efficient delivery.

Conclusion

The Dongming Road metaverse digital community demonstrates how emerging technologies can be harnessed to strengthen social cohesion, participatory governance, and local economic vitality in an aging urban context. By integrating digital tools within a community-driven framework, the initiative transforms technology into a means of empowerment rather than an end in itself. Its success in engaging diverse residents, revitalizing local commerce, and promoting transparent decision-making highlights the potential of human-centred digital transformation. The model offers valuable lessons for cities seeking to align innovation with inclusivity, ensuring that digitalization enhances, rather than replaces, community life and urban resilience.