Supplementary Information for

Unveiling Sustainable Co-Creation Patterns in Entrepreneurial Ecosystems of Shanghai's High-Density Urban Communities

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Supplementary Table S1: The detailed information of selected cases.

Supplementary Table S2: The questionnaire sample according with RGT assessment principle.

Table S1. The detailed information of selected cases.

	Introduction
C1	The project, initiated by the College of Design and Innovation at Tongji University, is part of the NICE 2035 initiative (Neighborhood of Innovation, Creativity, and Entrepreneurship towards 2035). It represents a successful example of leveraging academic resources to foster innovation. Transforming 1028 Siping Road into a "Future Living Prototype Street", the project integrates university resources, such as knowledge, talent, and creativity, to stimulate innovation and economic growth. The initiative uses the "living lab" approach to explore future lifestyle scenarios through continuous prototyping and iteration, making it a benchmark for design-driven community innovation. Currently, the project is operating successfully, with regular community engagement and continuous refinement of its prototypes. In addition, it has expanded into new projects, further advancing its role as a hub for entrepreneurial and community-driven innovation. It features living labs, boutique coffee shops, and community activity spaces, supporting entrepreneurs by fostering regular interactions among designers, researchers, entrepreneurs, and residents. Recognized for its contribution to community-driven innovation, the project continues to refine its prototypes based on regular user feedback, advancing a sustainable and design-driven economic model.
C2	Initiated by the community-based organization Dayu Regeneration, this project, exemplifies a successful community-centric entrepreneurial approach. By revitalizing a 1,100-square-meter underground air-raid shelter in Shanghai's Xianxia Xincun Street into a multifunctional community center, the initiative has transformed underutilized spaces into shared workspaces, art studios, and cultural activity centers. This transformation has fostered strong resident participation, strengthening community bonds and creating a robust platform for local entrepreneurship. The project operates under a co-governance model, where various hosts autonomously manage and jointly operate the space, encouraging community engagement and collaboration. Currently, the project is operating well and has expanded its scope by launching new community-driven initiatives. It has also collaborated with numerous media outlets, enhancing its social impact and serving as a model for sustainable community entrepreneurship.
C3	Amid globalization and digitalization, integrating art with community life has revitalized urban development. This project asserts that art transcends mere aesthetic appreciation, becoming a vital component of community life. By establishing collaborative spaces for future art-focused communities, it explores new models of art-community symbiosis and supports art-driven entrepreneurial ventures. Public spaces such as plazas, streets, and parks are utilized for art exhibitions, performances, and interactive activities, providing residents with meaningful engagement opportunities. The project also promotes active community participation in designing and implementing art initiatives. Partnering with local governments and cultural institutions, it aims to create an art entrepreneurship incubator that offers platforms and resources for collaborative creation, exhibition, and investment for emerging entrepreneurs. But its long-term impact on community entrepreneurship remains limited due to reduced activity levels.
C4	Situated on University Road in Yangpu District, this project capitalizes on its proximity to esteemed universities and the vibrant cultural environment to create an entrepreneurial incubation platform centered on youth-driven culture. It fosters collaboration among entrepreneurs to develop commercial prototypes and nurtures an innovation network through interactions among like-minded individuals. The platform provides multifunctional shared workspaces, including open office areas, meeting rooms, and exhibition zones. Moreover, it collaborates with university and business mentors to offer guidance in knowledge and skills, and connects entrepreneurs with

	investors to facilitate the market entry of promising projects. Currently, this project has undergone significant adjustments, including relocating from its original community. And the project team is currently seeking new opportunities to integrate into other communities.
C5	This project develops a community-based entrepreneurial ecosystem that supports project-based learning and promotes community development. By offering platforms for experience sharing, prototype guidance, and personal growth, the project fosters participant self-fulfillment and community advancement, empowering social entrepreneurs focused on sustainable development. It establishes a hybrid online-offline educational platform that provides a range of courses and workshops in personal development, professional skills, and social innovation. The initiative offers guidance, resources, and practical tools for transforming ideas into viable projects, while actively involving community residents in the design and implementation processes to meet community needs and enhance residents' sense of belonging. Currently, this project is operating effectively and has expanded by launching additional educational and community-based programs.
C6	This project focuses on incubating social entrepreneurship initiatives that enhance community building. It revitalizes public spaces--such as old warehouses and vacant shops--into multifunctional community centers that include shared workspace, cultural exhibition areas, and activity centers. The "One Square Meter Action" initiative is introduced to encourage residents to propose and engage in small-scale community development projects, thereby fostering social entrepreneurship and community resilience. Additionally, the "345 Social Innovation Lab" is established to assist entrepreneurs with collaborative design and prototype incubation, emphasizing community-driven social innovation. The project employs a dynamic approach involving simultaneous construction, operation, and iteration to maintain the ecosystem's sustainability and vitality, providing a premier incubation and knowledge-sharing platform for entrepreneurs. This project remains a standout model for social entrepreneurship and has recently expanded its impact through new initiatives.

Table S2. The questionnaire sample according with RGT assessment principle.

Item	Construct(+)	C1	C2	C3	C4	C5	C6	Construct(-)
A01	Clear objectives unify collaboration and resource sharing.							Unclear co-creation objectives lead to inconsistent participant collaboration and resource use.
A02	Open and transparent communication channels foster trust and efficiency.							Unopen communication channels result in co-creation misunderstandings and a lack of trust.
A03	Effective integration, circulation, and optimal allocation of resources support the co-creation potential realization and quality.							Ineffective integration, circulation, and optimal allocation of resources hinder the co-creation potential realization and quality.
A04	Effective management of stakeholder capabilities ensures full utilization of expertise, enhancing the co-creation professionalism and efficiency.							Poor management of stakeholder capabilities leads to ineffective utilization of professional skills, reducing co-creation effectiveness.
A05	Effective empowerment strategies ignite participants' innovation, potential and engagement.							Ineffective empowerment strategies limit participants' innovation, contribution and engagement.
A06	A clear collaborative work mechanism fosters team cooperation and innovation efficiency.							The unclear collaborative work mechanism leads to poor cooperation and low innovation efficiency.
A07	Effective innovation incentive system stimulates participants' enthusiasm and creativity.							Insufficient innovation incentive system hinders the participants' enthusiasm and creativity.
A08	An efficient coordination intermediary promotes information sharing, enhancing mutual trust and ensuring participants'							An inefficient coordination intermediary leads to poor information transmission, lack of trust, and barriers to cultural and policy adaptation.

	cultural and policy adaptation.							
A09	A clear and fair mechanism for sharing benefits strengthens co-creation cohesion and willingness.							The absence or unreasonableness sharing benefits leads to internal conflicts and co-creation obstacles.
A10	A flexible access and exit mechanism maintain the vitality and adaptability of the ecosystem.							A rigid access and exit mechanism is not conducive to the vitality and adaptability of the ecosystem.
A11	Effective evaluation and feedback mechanism on the co-creation process and results promote continuous improvement.							Ineffective evaluation and feedback mechanism leads that co-creatin problems remain unresolved for a long time.
A12	Managers provide clear and positive policy support, guiding and safeguarding co-creation activities, and enhancing the stability and predictability of the ecosystem.							Insufficient clear policy guidance or insufficient support from managers leads to uncertainty and potential risks in co-creation activities.
A13	Managers provide clear and positive policy support, safeguarding the stability of co-creation activities.							The lack of clear or insufficient policy support leads to uncertainty and potential risks co-creation activities.
A14	Effective pre-education and adaptive training enhances participants' co-creation capabilities and efficiency.							Ineffective pre-education and adaptive training results in insufficient co-creation capabilities and efficiency of participants.