

Marginal heritages and food systems: an urban living lab between care and creativity

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Abstract.

This contribution investigates how food-system Living Labs can function as enabling infrastructures for the reactivation of tangible and intangible heritage in marginal contexts undergoing intertwined climate-environmental and socio-economic transitions. Building on the European project REDESIGN (GA 101182261), it examines the integrated role of cultural and creative industries (CCIs), craft practices, and circular-economy networks in transforming underused spaces into sites of cultural production, biodiversity enhancement, and social cohesion. The empirical basis comprises three European Living Labs: a social-housing neighbourhood (Teviot, London), a peri-urban system of cultural orchards (Salt, Girona), and a city-wide network for the right to food (Dortmund). Through participatory action research, co-design, and methodological evaluation, the paper proposes an interpretive model that distinguishes three modes of relationship between marginal heritage and food systems - heritage-as-space, heritage-as-landscape, and heritage-as-governance - and analyses their spatial-functional outcomes, conditions of transferability, and the role of CCIs as agents of activation, translation, and cultural maintenance.

Keywords: Urban living lab; Food systems; Marginal heritages; Circular economy; Cultural and creative industries.

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Introduction

The notion of heritage has progressively expanded and stratified over time, encompassing both tangible and intangible dimensions and taking shape as a cultural and collective process (Harvey, 2001), shaped by social practices and shared imaginaries that orient everyday uses (Smith, 2006; Harrison, 2023). In line with the perspective outlined by ICOMOS, heritage is understood as a dynamic stratification of values in continuous transformation, requiring critical and reflexive approaches (Harrison, 2023; Lixinski et al., 2024). Within this framework, this contribution considers as objects of research and design also diffuse, ordinary, or “shadowed” resources: interstitial spaces, minor productive landscapes, community practices, social infrastructures, and informal skills. Here, “heritage” is treated as a set of situated resources - both material and immaterial - whose persistence depends on their capacity to be actively practised, cared for, ritualised, and updated over time (Lähdesmäki, 2025). Reactivation implies a process of reorganising uses, actors, rules, and spatial devices that goes beyond mere symbolic valorisation.

The current climate, ecological and socio-economic crisis - marked by climate change, biodiversity loss, increasing inequalities and the fragilisation of urban and rural ecosystems - requires research and design approaches able to connect heritage regeneration, socio-spatial inclusion and ecological transition. In this context, marginal heritage cannot be addressed only through conservative or episodic interventions, but needs situated processes capable of reorganising spaces, practices, actors and forms of care in relation to local identities and everyday uses (Harrison, 2023). This perspective calls for an integrated reading of heritage and innovation, in which diffuse and ordinary resources are understood as evolving socio-ecological systems rather than as isolated assets. These include architectural, environmental, and natural components, as well as landscape and community dimensions of a relational nature (UNESCO, 2003), together with cultural rights, participatory dimensions, and community practices. The research therefore focuses not only on the physical regeneration of such resources, but also on their capacity to support social cohesion, biodiversity enhancement and new territorial relations.

Within this context, food is adopted as a design device because it: connects ecological dimensions (soil, water, biodiversity), social dimensions (access, health, inclusion), economic dimensions (value chains, labour, proximity), and cultural dimensions (rituals, know-how, narratives); makes transformations often considered “intangible” measurable through indicators and tracking; and enables low-threshold spatial experimentation (micro-infrastructures, temporary installations, collection and redistribution devices) suitable for contexts with limited resources and multidimensional vulnerability. The relationship between food and heritage has been explored in connection with cultural landscapes and intangible heritage (UNESCO, 2003; Swensen et al., 2022), as well as within the new geography of urban food security (Sonnino, 2016). Yet, the capacity of urban food systems to operate as an infrastructure for reactivating marginal heritages through the convergence of cultural and creative industries (CCIs), circular economy, and participatory processes remains under-investigated.

This contribution is positioned within the literature on urban living labs as physical spaces and socio-technical environments for experimentation and governance in sustainability transitions, where knowledge production and design production are intertwined through iterative cycles (Bulkeley et al., 2016; Voytenko et al., 2016). In the food domain, studies on community gardens and urban agriculture highlight the multifunctionality of cultivated spaces and their capacity to generate differentiated benefits for diverse social groups (Fox-Kämper et al., 2018; Specht et al., 2014; Dubová & Macháč, 2019). However, the existing literature has not yet systematically related these insights to the category of marginal heritage, nor has it explored the specific role of CCIs in processes of food-related heritagisation.

The contribution of the paper lies in clarifying how food-system Living Labs can operate as design and governance infrastructures for the reactivation of marginal heritage. More specifically, the paper connects three bodies of debate that are usually addressed separately: marginal and diffuse heritage, urban food-system transformation, and the role of cultural and creative industries in place-based regeneration. Specifically, the paper proposes: first, an interpretation of marginal heritage as a socio-ecological infrastructure rather than as an isolated asset; second, an analytical framework that links Living Labs, CCIs and circular-economy practices; third, a comparative reading of spatial-functional outcomes - access regimes, uses, management responsibilities, maintenance requirements and reversibility - as variables through which the practical reactivation of heritage can be observed and assessed.

The REDESIGN project: objectives and methodological framework

The empirical field of this research is the European project REDESIGN tRansformative foOD valuE Systems reshaping resilient urban laNdsapes (GA 101182261, Horizon Europe CL6-2024-COMMUNITIES; <https://horizon-redesign.eu/>). The project aims to codify the transformative processes of urban agri-food systems through experimentation in three Living Labs, with the intention of strengthening the active role of local communities and increasing collective awareness of food value, with particular attention to socially more vulnerable contexts. The project therefore considers food as a set of place-rooted relationships, in which food production, consumption, exchange, and recovery become opportunities to generate social cohesion, inclusion, and urban regeneration, moving beyond the narrow concept of food production and productive supply chains. The methodological architecture is grounded in three interconnected pillars: the Urban Food Value Framework (UFVF), the New European Bauhaus (NEB) Compass, and the Transformative Loop Methodology (TLM).

Within this structure, the spatial-functional outcomes expected from the project are organised across three interconnected levels:

1. the physical reconfiguration of spaces, through productive micro-infrastructures, circularity-oriented devices and settings that support social interaction;
2. the reorganisation of use and management practices, through new routines of care and cooperative models along the production–distribution–consumption cycle;
3. the construction of new narratives and forms of recognition of the heritage value of places, through the active involvement of cultural and creative industries. This articulation makes it possible to move beyond an approach to urban regeneration centred solely on physical transformation, integrating organisational and symbolic dimensions as necessary components of lasting heritagisation (Fig. 1).

Urban Food Value Framework

The Urban Food Value Framework (UFVF) represents the original model for assessing the value scale of urban agri-food systems, transcending purely economic-material value and aligning with True Cost Accounting approaches that make visible the environmental and social externalities embedded in agri-food production and distribution systems (de Adelhart Toorop et al., 2021; Brumm & Fukushi, 2023). The UFVF constitutes the theoretical and operational backbone of REDESIGN, integrating four evaluative dimensions: spatial, social, ecological, and economic. From this perspective, food and its supply chain assume the role of a systemic node capable of connecting production, distribution, consumption, governance, communities, and cultural practices.

In the prototyping phase, the Framework performs a design-orientation function. The prior definition of evaluative categories and indicators makes it possible to translate general sustainability and inclusion goals into verifiable operational criteria. Living Labs can thus configure spatial, organisational, and cultural devices consistent with measurable transition trajectories. Structuring dimensions such as emissions reduction, equitable access to food, public-space quality, and the strengthening of community networks allows experimentation to be anchored to shared parameters, fostering iterative processes of experimentation–measurement–learning–adjustment.

The collection of quantitative and qualitative data according to predefined indicators enables monitoring of the effects of the activated transformations and positioning them with respect to the global dynamics of food systems. From an evaluation standpoint, the Framework enables structured comparison across heterogeneous contexts through common categories, expanding interpretative capacity beyond output measurement to include the reading of governance configurations and transferability potentials.

New European Bauhaus and the NEB Compass

The New European Bauhaus (NEB), promoted by the European Commission as a strategic initiative supporting the Green Deal, defines an integrated framework that combines environmental sustainability with spatial quality and social inclusion, and is increasingly being applied also in the field of urban food systems. Recent scientific contributions highlight its potential to connect ecological transition, food justice, and socio-spatial innovation through co-creation practices and multi-level governance (Emiliani 2021).

For REDESIGN, the NEB Compass provides a value-based and design-oriented framework that integrates the application of the UFVF within a transformative vision of urban food systems. The Compass is articulated around the three values Beautiful, Sustainable, and Together, and is structured coherently with the cross-cutting principles of participatory process, multi-level engagement, and a transdisciplinary approach. The interaction between the NEB Compass and the Urban Food Value Framework produces an integrated matrix in which the capacity to promote social justice and access to quality food coexists with the capacity to produce and preserve the spatial quality of urban contexts.

Transformative Loop Methodology

The Transformative Loop Methodology (TLM) is grounded in three main theoretical axes. The first is represented by Communities of Practice, which conceive learning as a situated social process based

on the sharing of a domain of interest, the building of a community, and the production of a shared practice (Wenger-Trayner & Wenger-Trayner, 2015). The second axis is Theory of Action and the learning loops model (Argyris & Schön, 1997), which interprets learning as the detection and correction of errors and distinguishes between single-loop learning (optimisation of actions), double-loop learning (revision of strategies and operational assumptions), and triple-loop learning, which involves reflection on the values and purposes that orient organisational action (Clark, 2021). The third foundation is boundary theory and the concept of boundary work, which analyse the conditions under which subjects belonging to different spheres can produce shared knowledge (Guston, 2001; Star & Griesemer, 1989; Schröter et al., 2023).

At the operational level, the TLM is articulated into a sequence of interconnected phases (Fig. 2): activation of a clustering and knowledge-creation process through the consolidation of a network of good practices, urban agriculture initiatives, municipalities, and sector associations, called the REDESIGN Network (RED-N); analysis and assessment of the case studies collected in the RED-N to identify their innovative potential and assess transferability through the UFVF; application within the Living Labs through value mapping, identification of drivers of food insecurity, and the design of place-based interventions; systemic evaluation of the activated transformations through the combination of environmental and social indicators, complemented by micro-economic parameters. The TLM operates at the intersection of practice and institutional innovation, fostering forms of institutional learning that enable public and civic actors to revise governance modes and regulatory instruments in light of local experimentation.

Materials and Methods

The empirical field of the study consists of the three Living Labs activated by the REDESIGN project, analysed as comparable cases within a shared methodological framework but embedded in different socio-spatial and institutional conditions:

- a social housing neighbourhood (Teviot, East London);
- a system of peri-urban cultural gardens and orchards (Salt, Girona area);
- a city-wide right-to-food network with an urban-agricultural demonstrator (Dortmund: Global Field and Food Policy Council).

Across all cases, existing heritages - such as shared residential open spaces, historical agrarian landscapes, and community practices - are conceived as socio-ecological infrastructures to be regenerated through circular food systems and place-care practices.

The research adopts a participatory action-research approach and uses the three REDESIGN Living Labs as comparable case studies rather than as project descriptions. The analysis combines project documentation, comparative case analysis and the structured reading of spatial, social and governance-related variables, with the aim of identifying recurrent modes of relationship between marginal heritage, food systems and socio-spatial reactivation devices. For the purposes of this article, the comparative analysis was structured through a “heritage–space–practices–governance” grid. The grid was used to compare the three cases according to homogeneous criteria: the nature of the heritage involved, the access regime of spaces, the food-related practices activated, the actors responsible for management, maintenance requirements, the role of cultural and creative industries, and transferability potential. This analytical grid allowed the three Living Labs to be compared not as generic project pilots, but as situated configurations in which heritage reactivation depends on the

interaction between spatial devices, social practices and governance arrangements. In parallel, the research considers the operational set-up of a Living Lab Operations & Indicator Toolkit aimed at ensuring consistency across the three cases in operational roles and service flows—including data collection—while emphasising modularity and transferability.

Application fields: the Living Labs

Within the REDESIGN project, Living Labs are conceived as territorial devices through which to experiment, under real-world conditions, processes of transformation of urban food systems. They operate in specific contexts and take local socio-economic and institutional configurations as their starting point, acting upon them through co-production practices that involve public administrations, civic organisations, businesses, and citizens. The action of Living Labs extends intervention beyond technical solutions, affecting the modes of governance and the relationships among actors that regulate access to food. Each lab constitutes a situated learning space in which experiments are progressively reworked, evaluated, and codified into transferable transformative pathways.

LL1: Global Field, Dortmund (DE)

The Dortmund Living Lab develops in the Rhine–Ruhr metropolitan region, in an area that has undergone deep post-industrial reconversions and today displays marked inequalities and a culturally heterogeneous population. This space aims to make visible the connections between local consumption practices and global land-use dynamics, translating complex issues into experiences that are accessible to citizens; it stimulates critical reflection on supply chains and their environmental and social implications. The urban-agricultural dimension is integrated into a broader design that involves local actors, with the objective of strengthening the collective capacity to steer the food system towards criteria of equity and sustainability. CCIs act primarily as translators between technical knowledge, public perception, and political negotiation, enabling informed participation and data literacy.

LL2: Salt Cultural Orchards, Girona (ES)

The Salt Living Lab is located in a peri-urban context characterised by conditions of economic fragility that affect access to food and opportunities for social participation. Cultural plurality is leveraged through the Cultural Orchards, conceived as community spaces where agro-ecological production and cultural practices intertwine. Over half of the municipal territory is occupied by urban gardens, which constitute a heritage to be re-actualised through new social demand. Here, the design of a shared space for food processing and distribution takes the form of an open process in which migrant women and vulnerable groups assume an active role in defining activities and managing resources. Cultivation becomes a device for symbolic unity and inclusion, with employment-related spillovers. CCIs contribute to the construction of intercultural narratives and to reducing linguistic, cultural, and symbolic barriers, conferring on the intervention a significance that goes beyond the productive dimension to affect organisational capacities and civic participation.

LL3: Teviot Social Housing Estate, London (UK)

The Teviot Living Lab is situated within a public social housing estate in East London, where conditions of deprivation affect both employment opportunities and the quality of the urban

environment. The intervention focuses on the reconfiguration of shared residential open spaces and of the organic-waste cycle, introducing an anaerobic digestion system that enables the production of biogas and compost to be used for community cultivation. This infrastructure is integrated into a broader project for upgrading green spaces, developed with the direct involvement of residents and local authorities. The lab simultaneously addresses the environmental and the socio-economic dimensions, proposing a local reorganisation of resource-management practices that aspires to generate structural effects over time.

Results

Result 1: an interpretative model for the marginal heritage–food systems relationship

The comparative analysis of the three Living Labs identified three recurrent modes through which food-system experimentation becomes connected to marginal heritage. These modes do not describe fixed typologies, but analytical configurations emerging from the relationship between existing spatial resources, food-related practices and governance arrangements:

- heritage as space in use, as in Teviot, where ordinary and interstitial open spaces require functional reprogramming;
- heritage as productive landscape, as in Salt, where peri-urban agrarian systems and cultivation-related skills need to be re-actualised;

heritage as institutional capacity, as in Dortmund, where networks, deliberative arenas and policy tools consolidate practices and rights. This tripartition clarifies that marginal heritage is not a homogeneous category. In each case, the capacity of heritage to become active again depends on specific combinations of access regimes, management actors, maintenance responsibilities, forms of participation and continuity of use.

Result 2: spatial-functional outcomes and conditioning factors

In Teviot, shared residential open spaces are interpreted as a “fragile” everyday heritage: a potential resource for microclimatic well-being and proximate sociality, yet underused due to access barriers and use conflicts, also linked to possible care deficits. Spatial-functional outcomes focus on micro-transformations: low-maintenance cultivation and composting devices; solutions for the collection and redistribution of food waste integrated with meeting places; and the re-articulation of thresholds, paths, and resting areas to improve legibility, perceived safety, and social inclusiveness. The critical factor is organisational sustainability: without local alliances and routines of management, micro-infrastructures risk rapid obsolescence.

In Salt, heritage is connected to productive soils and historical agrarian landscapes that require a new “social demand” to be maintained. Cultural Orchards operate as laboratory landscapes where food production integrated with environmental education and socio-economic inclusion is co-designed. Spatial-functional outcomes include: ecological and functional reconnection between the urban fabric and peri-urban soil; outdoor classroom spaces and didactic devices (signage, installations, cultural activities) as learning infrastructures; and micro-infrastructures for water and biodiversity management supported by light logistics for collection, storage, or distribution. CCIs contribute to narrative-building and to reducing access barriers (linguistic and cultural, but also symbolic), with specific attention to vulnerable groups.

In Dortmund, heritage is predominantly institutional and network-based: deliberative capacity, multi-actor coordination, policy production, and tools. The Global Field enables a systemic issue to be “spatialised”: it makes value chains and related trade-offs observable and measurable through indicators. Spatial-functional outcomes focus on: demonstrative spaces and visualisation devices to render data and priorities tangible; deliberative environments (Food Policy Council) as infrastructures for decision-making and learning; and integration between experimentation spaces and governance spaces, from field testing to policy. CCIs act as translators between technical knowledge and public perception in political negotiation processes, enabling informed participation.

Result 3: a cross-cutting comparison matrix

The comparison highlights four recurring classes of “spatial-functional device”:

1. proximity micro-hubs (production, waste reduction, relationships);
2. laboratory landscapes (production, education, and biodiversity);
3. policy spaces (deliberative arenas and governance infrastructures);
4. demonstrators (experimentation, data literacy, and communication).

Transferability across contexts is conditioned by: ownership and management regimes, maintenance capacity, density of intermediary actors (third sector and CCIs), and the stability of resources. Prospectively, an operational toolkit and an integrated metric (UFVF and spatial indicators) can reduce procedural heterogeneity and increase comparability and scalability. Table 1 synthesises the cross-case comparison of the three Living Labs.

Discussion

The results indicate that “reactivating” marginal heritages through food Living Labs means orchestrating three simultaneous transformations:

- physical (micro-infrastructures, access, use devices);
- organisational (roles, rules, routines, maintenance);
- symbolic (recognition and narration of value).

Food enables the integration of these three dimensions because it requires spaces (even minimal ones), generates recurring practices (care, collection, distribution), and produces plural value (environmental, social, health-related, cultural) that is usable for evaluation. This reading is consistent with the perspective according to which heritage is not a static given but a continuously transforming process that requires active practices of care and re-actualisation (Lixinski et al., 2024). Comparison across the three cases shows that the relationship between heritage and the food system is shaped by local configurations, taking differentiated forms depending on context. In Teviot, heritage is the ordinary shared residential space, whose reactivation requires physical micro-transformations accompanied by cooperative management models; in Salt, it is the peri-urban agrarian landscape, which requires new social demand and narratives capable of connecting culturally diverse communities; in Dortmund, it is the institutional capacity of a deliberative network, whose effectiveness depends on translating complex data into accessible decision-making tools. This plurality suggests that the process through which a set of situated resources becomes recognised, cared for, and capable of generating value over time cannot be reduced to a single model, but requires adaptive design devices capable of negotiating between context-specificities and the structural conditions that affect success.

Across the three Living Labs, CCIs perform a function that exceeds a decorative or merely communicative role, acting as enabling infrastructures on three distinct levels: activation, through co-design and making practices integrated with public art that generate engagement and a sense of belonging; translation, by converting data and indicators into accessible narratives and shared decision-making devices; cultural maintenance, by sustaining rituals, learning practices, and narratives that ensure continuity of transformation processes over time.

A crucial aspect emerging from the analysis concerns the shift from experimentation with practices to innovation of policy frameworks. The experiences of the three Living Labs indicate that territorial experimentation can affect the operational structures of urban food systems when it is rooted in specific contexts and involves actors directly concerned by ongoing transformations (Gamache et al., 2020). The TLM institutionalises this dynamic by linking solution experimentation and policy innovation in a sequence based on recursive cycles: the process, organised around Living Lab activities as project pilots, makes it possible to contain resource dispersion and to proceed through an incremental approach to innovation in policy and public services, responsive to verified practical needs and challenges. Transformative effects consolidate when collective learning contributes to restructuring established socio-technical configurations and when innovations find placement within public frameworks that ensure continuity (Von Wirth et al., 2019).

In the three cases, the participation of vulnerable groups introduces a dimension that affects local food-system priorities. In Salt, migrant women become co-designers of the shared space; in Teviot, social-housing residents participate in defining cooperative models for community entrepreneurship; in Dortmund, the Food Policy Council renders deliberative a question that is usually technocratic. Experimentation thus becomes an opportunity to redefine criteria for access to resources and to reconsider power relations that influence food distribution.

The valorisation process activated engages the urban and architectural dimension in its dual material and immaterial components. On the one hand, it nourishes and consolidates situated knowledges, care practices, productive skills, and forms of cooperation that strengthen and institutionalise a supportive social fabric and collective self-organisation capacity; on the other hand, it intervenes concretely through the reactivation of underused spaces, the insertion of ecological micro-infrastructures, and the reconfiguration of spatial devices that affect how places are used and managed. The value produced, rather than being exhausted within the economic dimension of the food supply chain, sediments as spatial quality and socio-cultural recognition, contributing to transforming heritage into a dynamic resource capable of generating continuity over time.

This potential can consolidate provided that there is institutional capacity to recognise, interpret, and incorporate situated practices within decision-making processes, translating Living Lab experience into innovation in public policies, governance models, and the ways services are designed and delivered (Cacciolatti et al., 2025). The main limitation of the research concerns the still-evolving nature of the Living Labs and the different degrees of maturity of the three cases. The analysis therefore does not claim to measure final impacts, but to identify early spatial-functional and governance configurations through which marginal heritage can be reactivated via food-system experimentation. A second limitation concerns the dependence of Living Lab outcomes on local alliances, institutional support and medium-term resources: without stable forms of community or institutional anchoring, micro-infrastructures and spatial devices may remain temporary and fail to consolidate into lasting practices.

Future research will therefore focus on three directions. First, the Living Lab Operations & Indicator Toolkit will be further operationalised to ensure greater comparability among the cases. Second, the UFVF will be integrated with spatial and governance indicators able to assess access, maintenance, continuity of use, participation of vulnerable groups and institutional uptake. Third, medium-term monitoring will be required to verify whether the observed transformations generate stable forms of socio-ecological value, policy learning and heritage recognition.

Conclusions

This contribution interprets food Living Labs as devices for reactivating marginal heritages, capable of producing observable spatial-functional outcomes and of actualising identity-related values through practices of care and creative learning. The comparison across Teviot, Salt, and Dortmund highlights three complementary modes of relationship with heritage: heritage-as-space, heritage-as-landscape, and heritage-as-governance. Within each mode, CCIs play differentiated roles in making transformation processes accessible, shareable, and persistent.

At the theoretical level, the interweaving of heritage regeneration and the transformation of food systems—mediated by the UFVF and oriented by the NEB Compass—constitutes the core innovative contribution: food operates as a design device that connects cultural and creative industries, proximity welfare, and circular economies within a unitary process of active heritagisation. The focus on spatial-functional outcomes (accessibility, use regimes, maintenance requirements, reversibility) as representative variables of success and transferability constitutes an advancement with respect to the literature, which tends to address the relationship between food systems and heritage in predominantly symbolic or landscape terms.

At the operational level, integrating the three methodological pillars makes it possible to connect design, practical experimentation, and evaluation within a single infrastructure, rendering trade-offs and priorities explicit. The research shows that the robustness of introduced innovations depends on the relationship between material devices and institutional arrangements, and that practical heritagisation requires a shift from local experimentation to the structuring of policy frameworks capable of ensuring continuity. Future developments concern the formalisation of replicable guidelines through the Living Lab Operations & Indicator Toolkit, refinement of integrated socio-ecological and spatial indicators, and verification of organisational sustainability in the medium term (management and maintenance models). In this way, Living Labs can be understood as infrastructures for active heritagisation that extend their experimental function to marginal contexts, capable of transforming heritage from a latent resource into a driver of social cohesion and environmental quality, with innovative cultural spillovers.

REFERENCES

- Argyris, Ch., & Schön, D. A. (1997). Organizational Learning: A Theory of Action Perspective. *Reis*, 77/78, 345–348. <https://doi.org/10.2307/40183951>
- Brumm, A., Fukushi, K. (2024). Introducing the Food Value Framework (FVF) to empower transdisciplinary research and unite stakeholders in their efforts of building a sustainable global food system. *Environ Dev Sustain* 26, 25921–25943. <https://doi.org/10.1007/s10668-023-03713-z>
- Bulkeley, H., Coenen, L., Frantzeskaki, N., Hartmann, C., Kronsell, A., Mai, L., et al. (2016). Urban

- living labs: governing urban sustainability transitions. *Current Opinion in Environmental Sustainability*, 22, 13–17. <https://doi.org/10.1016/j.cosust.2017.02.003>
- Cacciolatti, L., Lee, S. H., Christodoulou, I. & Christofi, M. (2025). Living labs as ethical spaces: Fostering innovation and sustainability in food systems. *Journal of Business Ethics*, 1–21. <https://doi.org/10.1007/s10551-025-06174-8>
- Clark, K. M. (2021). Double-loop learning and productive reasoning: Chris Argyris's contributions. *Midwest Social Sciences Journal*, 24(1), Art. 6. <https://doi.org/10.22543/0796.241.1042>
- de Adelhart Toorop, R., Yates, J., Watkins, M., Bernard, J. & de Groot Ruiz, A. (2021). Methodologies for true cost accounting in the food sector. *Nature Food*, 2(9), 655–663. <https://doi.org/10.1038/s43016-021-00364-z>
- Dubová, L.; Macháč, J. (2019). Improving the quality of life in cities using community gardens: from benefits for members to benefits for all local residents. *GeoScape*, 13(1), 68–78. <https://doi.org/10.2478/geosc-2019-0005>
- Emiliani, T. (2021). Change on the menu: the New European Bauhaus Initiative as the enabler for the co-creation on the food systems of tomorrow. Institute of European Democrats (IED)
- Fox-Kämper, R.; Wesener, A.; Munderlein, D.; Sondermann, M.; McWilliam, W.; Kirk, N. (2018). Urban community gardens: An evaluation of governance approaches and related enablers and barriers at different development stages. *Landscape and Urban Planning*, 170, 59–68. <https://doi.org/10.1016/j.landurbplan.2017.06.023>
- Gamache, G., Anglade, J., Feche, R., Barataud, F., Mignolet, C. & Coquil, X. (2020). Can living labs offer a pathway to support local agri-food sustainability transitions? *Environmental Innovation and Societal Transitions*, 37, 93–107. <https://doi.org/10.1016/j.eist.2020.08.002>
- Guston, D. H. (2001). Boundary organizations in environmental policy and science. *Science, Technology, & Human Values*, 26(4), 399–408. <https://doi.org/10.1177/016224390102600401>
- Harvey, D. C. (2001). Heritage pasts and heritage presents: temporality, meaning and the scope of heritage studies. *International Journal of Heritage Studies*, 7(4), 319–338. <https://doi.org/10.1080/13581650120105534>
- Schröter, B.; Sattler, C.; Metzger, J. P.; Rhodes, J. R.; Fortin, M.-J.; Hohlenwerger, C.; Carrasco, L. R.; et al. (2023). Exploring the role of boundary work in a social-ecological synthesis initiative. *Journal of Environmental Studies and Sciences*, 13, 330–343. <https://doi.org/10.1007/s13412-022-00811-8>
- Smith, L. (2006). *Uses of heritage*. Routledge. <https://doi.org/10.4324/9780203602263>
- Sonnino, R. (2016). The new geography of food security: Exploring the potential of urban food strategies. *The Geographical Journal*, 182(2), 190–200. <https://doi.org/10.1111/geoj.12129>
- Specht, K., Siebert, R., Hartmann, I. et al. (2014). Urban agriculture of the future: an overview of sustainability aspects of food production in and on buildings. *Agriculture and Human Values*, 31(1), 33–51. <https://doi.org/10.1007/s10460-013-9448-4>
- Star, S. L. & Griesemer, J. R. (1989). Institutional ecology, “translations” and boundary objects: Amateurs and professionals in Berkeley’s Museum of Vertebrate Zoology, 1907–39. *Social Studies of Science*, 19(3), 387–420. <https://doi.org/10.1177/030631289019003001>
- Swensen, G.; Stafseng, V. E.; Simon Nielsen, V. K. (2022). Visionscapes: combining heritage and urban gardening to enhance areas requiring regeneration. *International Journal of Heritage Studies*, 28(4), 511–537. <https://doi.org/10.1080/13527258.2021.2020879>

UNESCO (2003). Convention for the safeguarding of the intangible cultural heritage. Paris: UNESCO.

von Wirth, T.; Fuenfschilling, L.; Frantzeskaki, N.; Coenen, L. (2019). Impacts of urban living labs on sustainability transitions: mechanisms and strategies for systemic change through experimentation. *European Planning Studies*, 27(2), 229–257. <https://doi.org/10.1080/09654313.2018.1504895>

Voytenko, Y.; McCormick, K.; Evans, J.; Schliwa, G. (2016). Urban living labs for sustainability and low carbon cities in Europe: towards a research agenda. *Journal of Cleaner Production*, 123, 45–54. <https://doi.org/10.1016/j.jclepro.2015.08.053>

Wenger-Trayner, E. & Wenger-Trayner, B. (2015). *Communities of Practice: A brief introduction*.

Images

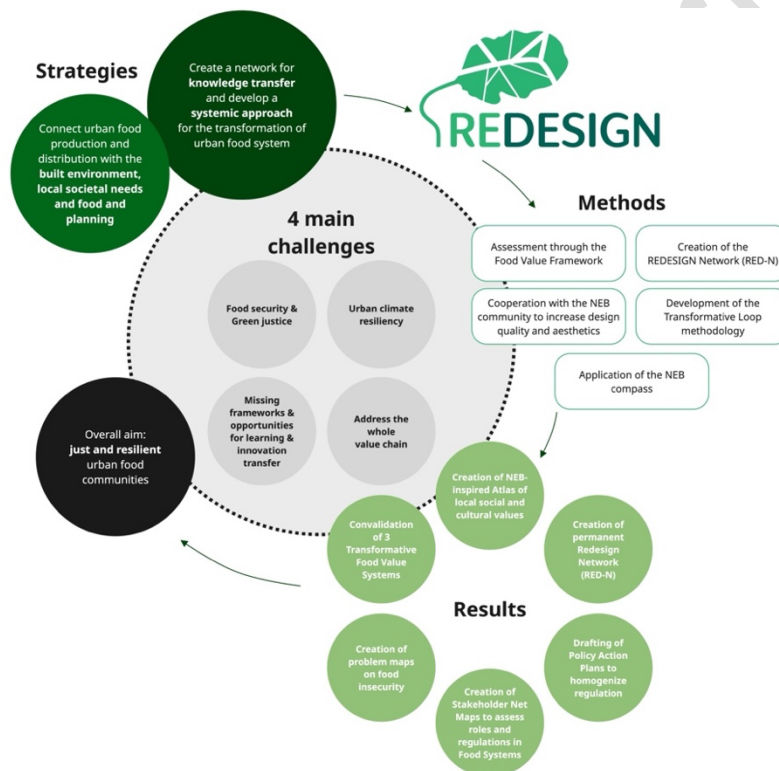


Fig. 01 – REDESIGN general project overview from identified needs to general impact (Copyright REDESIGN Consortium).

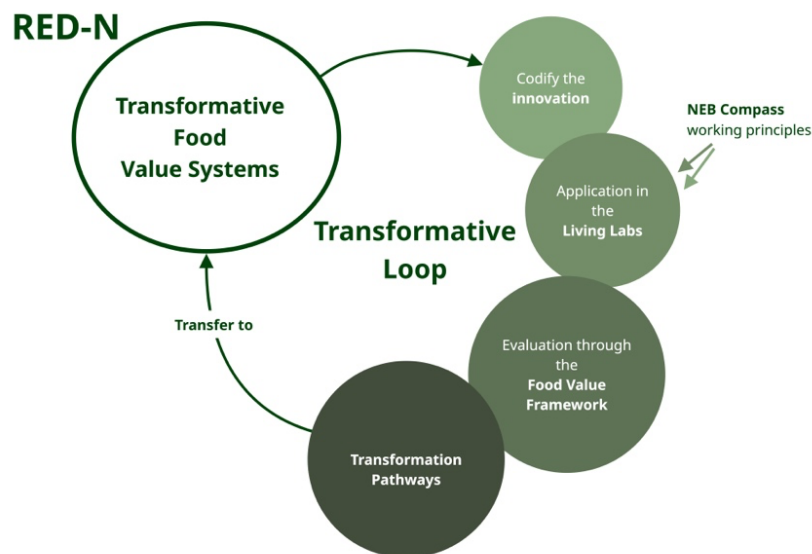


Fig. 02 – Transformative Loop methodology within REDESIGN Project (Copyright REDESIGN Consortium).

Tables

Living Lab	Heritage type & vulnerability	Context & target groups	Spatial-functional devices	CCI role	Assessment & KPIs
Teviot Social Housing Estate (London, UK)	Space-of-use: underutilised communal open spaces; socio-economic deprivation	Social housing; residents & community groups; local authority & housing association	Micro-hub: community orchard, forest garden, composting, outdoor kitchen, allotments, biogas	Activation: participatory co-design, cooking/skills workshops, community engagement events	Productivity; CO ₂ savings; resident perceptions; public space quality; FVF + Net-Maps/SNA
Salt Cultural Orchards (Girona, ES)	Productive landscape: historic urban allotments; cultural & linguistic barriers to inclusion	Low-income municipality; 40% migrant pop. (80+ nationalities); focus on migrant women & gardeners	Landscape-lab: Cultural Orchards, creolized food space, outdoor classrooms, agro-ecological plots	Translation: intercultural narratives, barrier reduction (linguistic, cultural, symbolic)	Inclusion / food justice; employability of migrant women; integration of allotments in urban food system; FVF + Net-Maps
Global Field (Dortmund, DE)	Institutional capacity: deliberative networks, policy instruments, collective knowledge	Post-industrial urban area; schools & students; governance via Food Policy Council	Policy-space & demonstrator: Global Field (2,000 m ²), FPC deliberative arena, visualisation devices	Cultural maintenance: technical-public translation, data literacy, advocacy, public communication	Environmental, social, economic & health dimensions; food policy coherence; FVF + Net-Maps/SNA

Legend: UFVF = Urban Food Value Framework; SNA = Social Network Analysis; RED-N = REDESIGN Network; TLM = Transformative Loop Methodology; CCI = Cultural and Creative Industries; FPC = Food Policy Council

Tab. 01 – Cross-case comparison: heritage type, spatial-functional devices, CCI roles and indicative outcomes across the three Living Labs.

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