



UNDERGROUND4VALUE

#COST Action CA18110

Underground Built Heritage as catalyser for Community Valorisation

Knowledge base for case studies

September 2019

a. Introducing the methodology

Nowadays, rather than being a development opportunity, heritage conservation is seen as a cost and a barrier to regional and urban development. Changing this perspective requires an innovation in the development path, by introducing new practices and behaviours that enable society to meet its needs in a more sustainable way.

The case study approach aims at investigating specific UBH valorisation experiences, at different stage of progress, carrying out their assessment from the technological, social, cultural, institutional, economic, and environmental point of view. In particular, the assessment should verify for each case, context-specific and characterised by an historical and cultural exclusivity, if they really represent a valuable resource for the sustainability challenge. Are they able to catalysing urban/rural regeneration and attracting tourism, raising community awareness and making local communities more resilient to globalised systems of production and consumption by preserving their unique environmental and cultural aspects? How their built structures and spaces could influence people's sense of belonging and of 'ownership' of particular localities, as well as daily routines, local rituals, traditions, ambiences, and atmosphere? How to integrate them in urban regeneration initiatives, giving a special character to places where people enjoy living, engendering economic development through job creations, and finally supporting social well-being through crime reduction, health, education and social capital?

Nonetheless, their preservation and valorisation could find **relevant constraints**. The case study assessment will describe these barriers, such as knowledge gaps (UBH sites are largely unexplored, even not documented, and indeed under-utilised), geotechnical and geo-environmental concerns (complex damage and decay mechanisms, long-term environmental processes and medium to short-term natural, human and ecological risks), deficiency of institutional capabilities and financial resources, and non-adequate policies and planning.

The host institution and the STSM investigator will develop a **first reliable UBH knowledge base**, by classifying different UBH typologies and the applied methodologies, in order to cover the different aspects (i.e. archaeology, geotechnics, history, spatial and urban planning, cultural anthropology, economics, architecture, cultural tourism).

Figure 1 describes the initial chart for UBH classification, to use for analysing case-study selected sites and for defining UBH systems or single elements, represented by the central square with the question mark (?) in the chart (Cfr; Varriale, 2019).

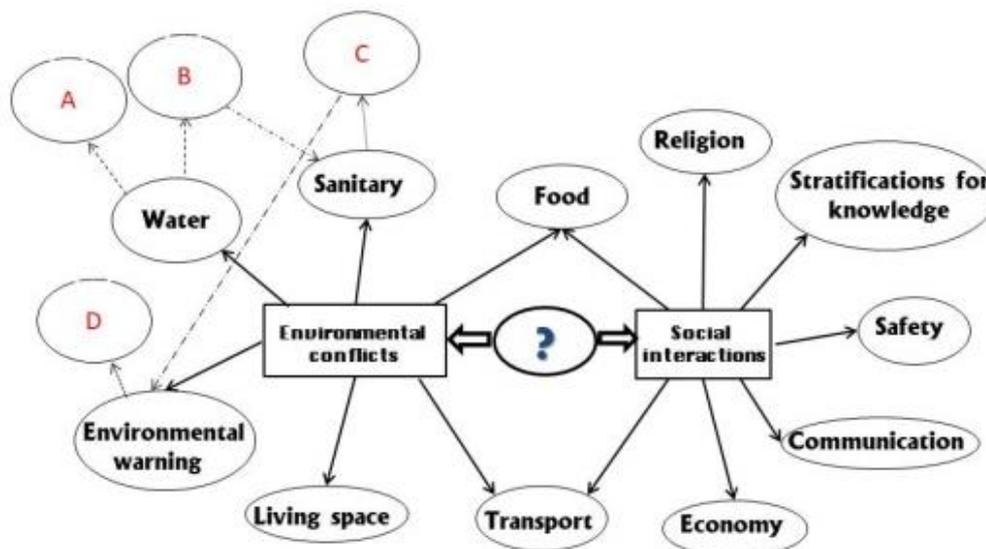


Figure 1. UBH classification and evolution chart (R. Varriale 2019).

The chart includes eleven functions, each generating the creation of correspondent caved artifacts. Four of them refer to the management of environmental conflicts: Sanitary, Water, Environmental warning (i.e. spaces absorbed in the underground level as an effect of violation of natural elements) and Living Space. Five other refer to the management of social interactions: Religion, Culture, Safety, Communication and Economy. Finally, two refer to both Environmental and Social issues: food and transport. By applying the chart, the investigator will reconstruct all the most important transformation processes undergone by the case-studies under evaluation. For example, an artifact, built to manage an environmental conflict linked to water management, was then transformed in an artifact dedicated to a sanitary function and, finally, absorbed under 0 level because caved in an area with environmental constraints.

The reconstruction of the historical dynamics affecting UBH not only allows to better understanding each single case study, but can also support comparative analysis among different UBH systems. In the selected case studies, this approach could help to represent the role played by UBH in supporting aboveground urban and rural development. Nonetheless, this approach could also contribute to additional actions concerning UBH. In fact, it can be the preparatory phase for both the evaluation of the effectiveness of the narrative role within valorization processes possibly already carried out and, also, support future actions in this direction (for quotations: Varriale, R. Re-Inventing Underground Space in Matera. *Heritage* 2019, 2, 1070-1084)

They will investigate underground ownership regulation, as well as planning legislation, and national/local authorities responsible for UBH conservation and management. Since these spaces are unconventional, at the same time, they open many questions on how to integrate them, not only spatially, but also on how to manage them through planning tools, and finally contextualise them in the production logics that intervene on an urban scale. First, there is a need to weight the relationship between conventional public and private spaces and underground ones, and how the latter undermine some logic of land use management plans, which think about surface functions.

Another fundamental element is the planning of the transition spaces between surface and underground spaces, here too we find ourselves in a hybrid area that requires particular attention in identifying functions and tools for the sustainable and effective management of these transition spaces. The underground space, whatever its use, must be integrated into the overall urban fabric in terms of visibility and accessibility. While, generally, at the surface all the in-between building spaces are public and all open spaces are public by definition, in the sub-surface level the public space has to be purposely constructed. Under both legal systems (Common law and Civil law), two legal principles prevail in terms of landownership:

1. *Superficies solo cedit*: Roman principle of law, implying that whoever owns the land does not own what is placed above/below the soil
2. *Cuius est solum, eius est usque ad coelum et ad inferos*: Medieval principle of law, realising that whoever owns the soil, holds title all the way up to the heavens and down to the depths of the earth. If applied to modern society, it would imply issues, in terms, for example, of air rights.

In Greek-Hellenistic law, however, it happened that the owner of a land ceded the right to build on the surface to another subject. The institution of the surface right was transposed by Justinian law, and later also by Italian law. Clearly, Hellenistic law did not know the *Superficies solo cedit* principle and, therefore, admitted that property could be divided into horizontal planes. Additionally, the Building codes are mostly not developed with specific underground space use in mind. This often leads to the application of generic rules that apply to buildings (basements), especially in case of fire and life safety.

They will assess the **existence (and when possible describe) of procedures and protocols for assessing the state of the UBH conservation** at national and local scale, of **surveying and dissemination practices** (historical and archaeological backgrounds, integrated geophysical

explorations, and surveys of the earth and subsoil resource) and of **new emerging technologies applied to UBH** (three-dimensional (3D) computer modelling and different sensing techniques).

For defining a UBH sustainable use, the investigator will make primary use of the “Recommendation on the Historic Urban Landscape (HUL)”, adopted in 2011 UNESCO’s General Conference. The HUL is a holistic approach for historic urban landscape management, which considers heritage as a social, cultural and economic asset for the urban development and aims at “...preserving the quality of the human environment, enhancing the productive and sustainable use of urban spaces, while recognising their dynamic character, and promoting social and functional diversity” (UNESCO, 2011).

HUL tools offer a flexible and general conceptual framework, characterised by “soft-law”, which countries can implement and adapt to their specific contexts on a voluntary basis. It does not provide a robust and comprehensive set of tools or binding regulations. On the contrary, it opens the door to a dialogue without entering in contrast with existing planning arrangements. This approach follows the same direction of the transition towards sustainability, which requires further changes in interdependent societal systems and across multiple scales – from the supply chains to the communities and individual citizens’ behaviours and values – and implies complex and uncertain processes, mainly depending on experimentation, learning and sharing ideas.

The case study assessment will be based on the HUL approach, and in particular, it will investigate the local capacity to use the HUL set of traditional and innovative tools, based on civic engagement, knowledge and planning tools, regulatory systems, and financial tools to adapt to different local contexts and built heritage. In this investigation, civic engagement tools will be verified in a living lab approach on topics selected by the host institution, by involving and empowering different stakeholders, supporting their capacity building, and helping them to identify key values in that specific UBH, to develop visions, goals and actions to safeguard their heritage and promote sustainable development. At the same time, the interaction with local and national public bodies will support analyses on potential integration of these tools in urban governance dynamics. In particular, the investigator will acquire knowledge about tools for encouraging dialogue and engaging stakeholders across society “to determine where we need to go and how we are going to get there” (EEA 2016). These tools should stimulate and facilitate local communities’ empowerment and connect natural, social, cultural, political and economic environments, gauging impacts across different spheres of life, and grasping the importance not only of ‘hard’ but also of ‘soft’ infrastructures”.

Topics such as cultural heritage, urban and rural regeneration, and sustainable tourism would become strategic opportunities at neighbourhood, urban and regional levels, if developed in a context of community engagement, with more effective coalitions of ‘actors’ supported by structures that encourage collaborative relationships. One challenge is the application of two community management tools - such as Strategic Stakeholder Dialogue (SSD) (Van Tulder et al 2004) and Transition Management (TM) (Kemp et al. 2005), and their integration into a new tool, the Strategic Transition Practice (STP), based on local communities’ experiments and empowerment, and a multi-level strategic dialogue (e.g. Living Labs) (Quotation: G. Pace, 2018).

The investigator should verify if these tools are able to facilitate dialogue among stakeholders, to promote a learning process of communities’ histories, traditions, values, needs and aspirations, and finally to mediate between groups with conflicting interests.

Tasks:

A. Before arriving on the UBH site of interest:

A1. Acquiring in-depth knowledge about the HUL approach and related applications in the context of cultural heritage, urban and rural regeneration, and sustainable tourism

A2. Learning about the principles and application of specific community management tools - such as Strategic Stakeholder Dialogue (SSD) (Van Tulder et al 2004) and Transition Management (TM) (Kemp et al. 2005), and their integration into a new tool, the Strategic Transition Practice (STP),

based on local communities' experiments and empowerment, and a multi-level strategic dialogue (e.g. Living Labs).

B. During the on-site short term mobility mission

B1. In the course of a formal meeting organized by the host institution, there will be a brief presentation of the overall research project and the detailed description of the community management tools to be experimented on site with local stakeholders in a subsequent workshop.

B2: Data related to the case study provided by both the host institution and key local stakeholders involved in the ownership and governance of the cultural site and participating at the meeting will be collected and analysed.

B3. An interview protocol will be elaborated for carrying on semi-structured interviews to different stakeholders involved in the governance of the cultural site and semi-structured interviews will be carried on to some key local stakeholders. Collected data will serve to triangulate the document material previously collected and analysed.

B4. The participation in a workshop involving local stakeholders mainly to verify if and specific civic engagement tools are able to facilitate dialogue among stakeholders, to promote learning and innovation and acting as a mediator between groups with conflicting interests.

C. After the on-site short term mobility mission

C1. The analysis of data through qualitative techniques

C2. The elaboration of scientific reports, presentations, and tutoring at the Training School

b. Living Lab Approach

The Living Labs are key components for regenerating the sense of identity, revitalising space and place and enhancing quality of life. They are places where **empowered local communities are able to co-create, experiment and test solutions**, in cooperation with public bodies and other stakeholder. They can draw local resources and establish community participation.

Conservation and re-use of UBH sites requires **adequate scientific and technical knowledge, technological capabilities and financial resources**, which local communities usually lack. Creating a Living Lab supports a transition towards sustainability, which requires further changes in interdependent societal systems and across multiple scales – from the supply chains to the communities and individual citizens' behaviours and values – and implies complex and uncertain processes, mainly depending on experimentation, learning and sharing ideas.

These processes demand to acquire and test tools for encouraging dialogue and engaging stakeholders across society “to determine where we need to go and how we are going to get there” (EEA 2016). New tools should **stimulate and facilitate local communities' empowerment** and connect natural, social, cultural, political and economic environments, gauging impacts across different spheres of life, and grasping the importance not only of ‘hard’ but also of ‘soft’ infrastructures”.

Topics such as cultural heritage, urban and rural regeneration, and sustainable tourism would become **strategic opportunities** at neighbourhood, urban and regional levels, if developed in a context of community engagement, with more effective coalitions of ‘actors’ supported by structures that encourage collaborative relationships.

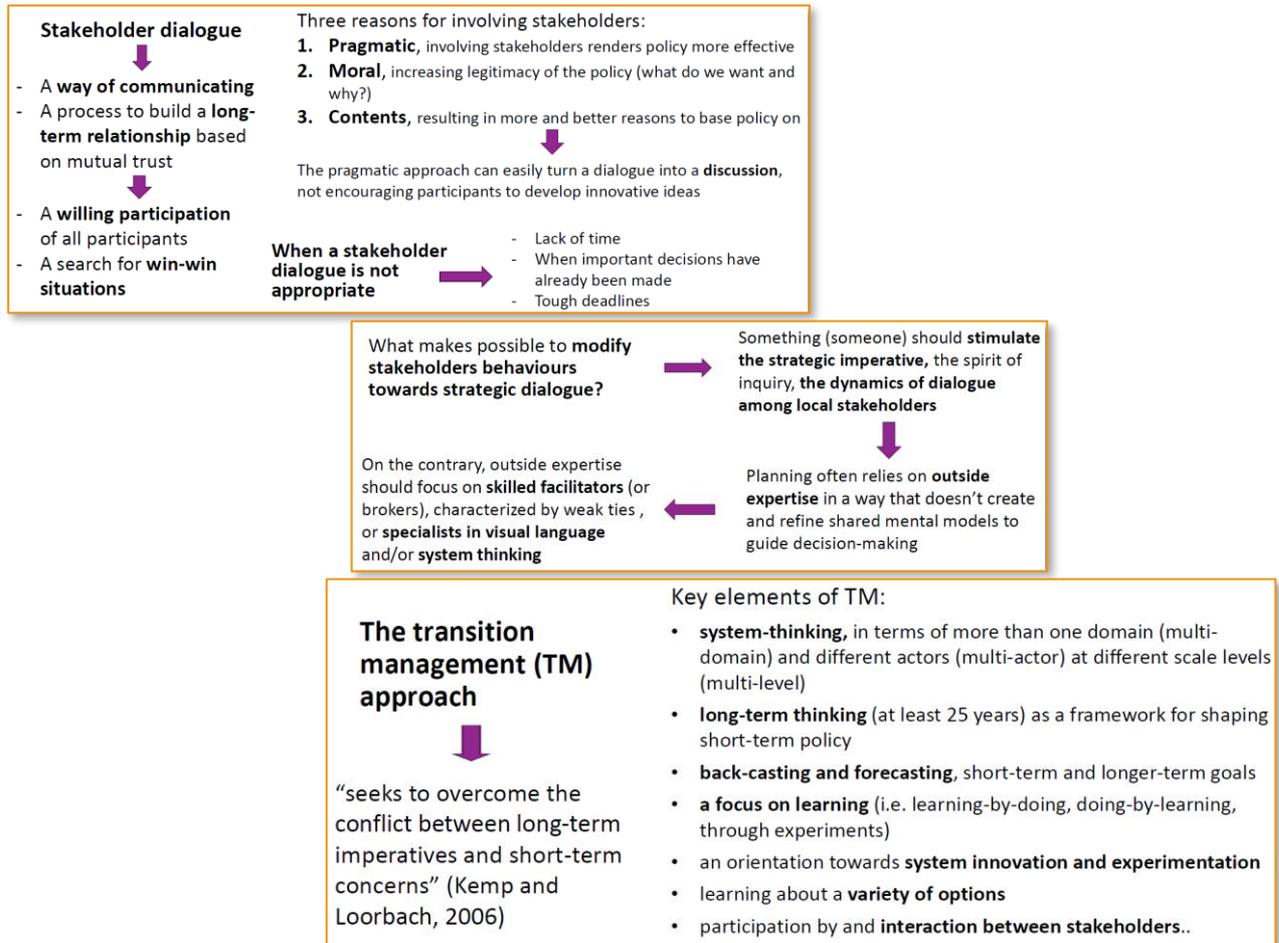


Figure 1: From Strategic Stakeholder Dialogue (SSD) to Transition Management (TM)

One challenge is setting up in the Living Lab of an **innovative approach of community engagement**, based on two management tools. The first is the **Strategic Stakeholder Dialogue (SSD)** (Van Tulder et al, 2004), a structured, interactive, and proactive process, aimed at creating sustainable strategies. It helps to find a balance between collective values and the pragmatic approach of solving strategic problems, and enhances the capacity for interactive learning, transforming new knowledge into coordinated action. However, the SSD is about tangible issues and responsibilities in which parties look for shared, suitable and realistic solutions. It demands for stakeholders firmly grounded in the reality (Fig. 1).

The second tool is the **Transition Management (TM)**, used for ‘managing’ transitions to sustainable energy, mobility, agriculture and the sustainable use and management of natural resources (Kemp et al., 2005). Based on ‘strategic niche management’, a concept invented by Arie Rip, a philosopher and sociologist of technology, interested in evolutionary approaches of sociotechnical change, TM is a tool for stimulating, developing and supporting real-life experiments (**Living Labs**) in a goal-oriented modulation, aimed at shaping processes of co-evolution (Kemp et al., 2005) and co-creation. It allows communities to explore alternative social trajectories in an adaptive, forward-looking manner, combining the capacity to adapt to change with the capacity to shape change (Rammel et al. 2004) and is concerned with positive goals (collectively chosen by society following a process of problem structuring).

The objective of pioneering socially and environmentally innovative solutions will be implemented by stimulating, developing and supporting processes of local community co-evolution and co-creation, which allows communities to explore alternative social trajectories in an adaptive, forward-looking manner, such as the Strategic Transition Management (STM).

It will be carried out during STSMs, workshops and in particular in the training courses, where trainers and trainees will work together on specific topics, producing a yearly publication.

By establishing Living Labs, it will be tested the potential of UBH for empowering local communities. The LLs will stimulate bottom-up initiatives, for guaranteeing continuity of use and significance to the underground historic fabric, revitalisation of the public realm and skills development for townspeople.

Tasks:

Setting up of a Common Framework: Community-led planning tools: Strategic Stakeholder Dialogue (SSD) and Transition Management (TM); Design and assembly of the “Toolbox of approaches and context-specific practices”; Set-up of the support tools; Identification of the training requirements

Living Lab preparation: Defining the target of the storytelling; Mapping of the Stakeholders, analysing their interests, power and influence in the regeneration process; Selection of potential mentors for the LLs

Living Labs set-up: Local Working Units (WUs) composition; Local Stakeholders’ mapping and activation; Living Labs establishment; Co-design of curricula, and set-up of tools and methods for each; Collective learning event: introducing the mentoring team and presenting the LL; Transition Management activities with the community; Draft of the Regeneration Plan

Monitoring & continuous evaluation of the Living Labs: Set-up of qualitative and quantitative indicators; Measurement of dissemination campaign and stakeholder participation’s impact and effectiveness.

There will also be innovative organisation of a **training school in cities characterised by relevant UBH**, aiming at stimulating the development of new skills in the field of planning and decision-making. The **training will expand the HUL framework** by developing new specific modules about UBH and introducing **Strategic Transition Management (STM)**. It will provide the planner with tools for stimulating, developing and supporting real-life experiments (**Living Labs**) in a goal-oriented modulation, aimed at shaping **processes of strategic dialogue, co-evolution and co-creation**.

c. Case-study approach: topic definition

The case-study approach will favour the comparison of similar UBH in different economic, social, political and cultural contexts, testing common practices and/or similar financial schemes as a proxy of existing benchmarks and/or strong cultural influences in planning and development. Broadening the participation to non-European partner countries would be very valuable for a wider sampling. The objective of interacting with local communities, disseminating innovative thinking and supporting them to explore alternative social trajectories in an adaptive, forward-looking manner, will be carried out during STSMs, workshops and in particular in the training courses, where trainers and trainees will work together on specific topics, producing a yearly publication.

Every year four STSMs will be performed in four different preselected localities and host institutions, enabling those partaking in the missions to gain access to specific data, instruments and methods not available in their own institutions, learn about UBH success factors of specific cultural contexts, practice community empowerment tools, and establish new partnerships.

In the contest of the CA18110, the STSMs will specifically contribute to the following objectives, as defined in the MoU:

- Mapping different UBH re-use and broader heritage-led regeneration case studies in different countries, and improving the overall comprehension of success factors in terms of business and management, financing mechanisms, stakeholders’ involvement, governance mechanisms, procurement, technical needs, and environmental, social and economic impacts
- Opening the network to partnerships with local management frameworks for each UBH case, as well as interacting with different local stakeholders, both public and private, to reach consensus on which values should be protected and carried on to future generations and determine the attributes that carry these values

- Pioneering socially and environmentally innovative solutions, by stimulating, developing and supporting processes of local community co-evolution and co-creation, which allows communities to explore alternative social trajectories in an adaptive, forward-looking manner, such as the Strategic Transition Management (STM).

From the methodological point of view, research activities address different UBH re-use and broader heritage-led regeneration plans, taking into account different environmental, institutional, economic, social and cultural factors characterising the different UBHs. The research activity, supported by the local host institution, must open the network to new partnerships and reach consensus on values to protect and carry on to future generations. Finally, by stimulating, developing and supporting processes of local community co-evolution and co-creation, the activities will report about socially and environmentally innovative solutions.

The topic definition must be conducted by the host institution with the local stakeholders, in order to find a shared problem (relevant for the community) to solve in any case (not a simulation) with real stakeholders and potential conflicting interests.

d. Time-planning

1. Study and analysis of the selected topic (2 months)
 - a. Historical framework and selected bibliography
 - b. Ecological framework
 - c. Social analysis
 - d. Territorial and regulatory framework
 - e. Legal framework
2. Stakeholders mapping (1 month)
 - a. Institutional stakeholders
 - b. Not institutional
 - c. Other stakeholders (by interviews)
3. Living lab establishment and organisation (3 months) – with meetings and stakeholders’ engagement
 - a. Goals definition
 - b. Approach and rules structure and sharing
 - c. Stakeholders empowerment and leaders choice
 - d. Meetings’ plan and organisation
4. Deepening the knowledge (interviews and assessments, with the STSM)
 - a. UBH Classifications
 - b. Oral and written narratives
 - c. Comparison with similar cases (internal survey of underground4value)
5. New technologies for UBH conservation and monitoring (STSM and host institution, local network) webinars
 - a. Technological topic defined and analysed
 - b. Expert network knowledge exchange and decision-making support (webinar)
 - c. Comparison with local solutions (Cost Benefit Analysis?)
6. Business and Management Models for public/private built heritage (STSM and host institution) webinars
 - a. Definition of the context (webinar)
 - b. Models’ selection

- c. Possible alternatives
- 7. Living Lab's Storytelling (STSM e network, 3 months)
 - a. Screenplay writing
 - b. Materials collection (video, audio, photo, etc..)
 - c. Production
 - d. Post Production and finalisation
 - e. Collective event
- 8. Living Lab evaluation and learning (STSM and Host Institution, 1 months)
 - a. Questions evaluation and standardisation (WGs)
 - b. Indicators (WGs)
 - c. Evaluation (STSM)
 - d. Report (STSM)

e. Report Summary (sample)

- 1. Introducing the methodology
 - a. Case-study approach: topic definition
 - b. Questionnaires and interviews with stakeholders
 - c. Crono-programme
- 2. The case study (ies):
 - a. Rationale of the topic
 - b. Geographic description
 - c. UBH History background
 - d. Local community involved
 - e. Main stakeholders
 - f. Problems and barriers to development
 - g. Regeneration processes
 - h. Perspectives and impacts
 - i. Bibliography
- 3. The Assessment: Questions on
 - a. Technology
 - b. Planning
 - c. Policies
 - d. Financial tools
- 4. Communication and dissemination
 - a. Local communication package
 - b. Tools for the Living Lab approach: Community engagement and empowerment strategies