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Heritage for people

Sharing vernacular knowledge to build the future

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This collective work gathers five European university institutions and integrates contributions from the project leader and the project partners. In addition to the Editors, the main contributors are:

Project leader

Universitat Politècnica de València, Escuela Técnica Superior de Arquitectura, Spain

Camilla Mileto, Fernando Vegas (*Project leaders and Principal investigators*), Valentina Cristini, Lidia García-Soriano, Guillermo Guimaraens, Marina Elia, María Lidón de Miguel, Juan María Songel, Juan Bravo Bravo, Jose Luis Baró Zarzo, Alicia Hueto Escobar, Sergio Manzano Fernández

Partners

Università degli Studi di Cagliari, Italy

Maddalena Achenza, Ivan Blecic, Amanda Rivera Vidal, Alice Agus

École Nationale Supérieure d'Architecture de Grenoble, France

Bakonirina Rakotomamonjy (*Principal investigator*), Sebastien Moriset, Nuria Sánchez Muñoz, Manon Mabille, Audrey Carbonnelle

Università degli Studi di Firenze, DIDA Dipartimento di Architettura, Italy

Letizia Dipasquale (*Principal investigator*), Alessandro Merlo, Saverio Mecca, Lucia Montoni, Edoardo Paolo Ferrari, Gaia Lavoratti, Giulia Lazzari, Matteo Zambelli

Universidade Portucalense, Portugal

Mariana Correia (*Principal investigator*), Gilberto Duarte Carlos, Goreti Sousa, Mónica Alcindor, Rui Florentino, Emília Simão, Ana Lima, Telma Ribeiro, Bruno Andrade

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authors

Maddalena Achenza, Mónica Alcindor, Bruno Andrade, José Baganha, Stefan Balici, Julieta Barada, Sara Bartolini, José Luis Baró, Juan Bravo, Gisella Calcagno, Gilberto Duarte Carlos, Alicia Casals, Carlos Castillo Levicoy, Valentina Cristini, Mariana Correia, Edoardo Paolo Ferrari, Teresa Cunha Ferreira, Soraya Genin, Carmen Gómez Maestro, Borut Juvanac, Marwa Dabaieh, Letizia Dipasquale, Marina Elia, Rui Florentino, Lidia García-Soriano, Alejandro García Hermida, Debora Giorgi, Leticia Grappi, Kin Guerra, Hubert Guillaud, Gaia Lavoratti, Davide Leone, Ana Lima, Saverio Mecca, Alessandro Merlo, Camilla Mileto, Magda Minguzzi, Lucia Montoni, Sebastien Moriset, David Morocho, Cristian Muñoz Catalán, Alina Negru, Amalia Nuevo-Delaunay, Karl Nyqvist, Constanza Pérez Lira, Giacomo Pierucci, Bakonirina Rakotomamonjy, Telma Ribeiro, Amanda Rivera Vidal, Alba Rivero Olmos, Elena Rigano, Nathalie Sabatier, Nuria Sánchez Muñoz, Emilia Simão, Juan María Songel, Goreti Sousa, Angela Squassina, François Streiff, Birgitte Tanderup Eybye, Jorge Tomasi, Antonella Trombadore, Francesco Trovò, Fernando Vegas, Marzia Varaldo, Montserrat Villaverde, Matteo Zambelli.

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Strategies for the management and dissemination of traditional knowledge for a sustainable future
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KNOWLEDGE MANAGEMENT AND DISSEMINATION
DOCUMENTING AND SAFEGUARDING INTANGIBLE HERITAGE
DOCUMENTATION AND DIGITAL SURVEY OF TANGIBLE HERITAGE
MANAGING VERNACULAR KNOWLEDGE FOR BUILDERS AND ARCHITECTS
SHARING KNOWLEDGE WITH A WIDE PUBLIC

KNOWLEDGE MANAGEMENT AND DISSEMINATION

Letizia Dipasquale, Saverio Mecca
Università degli Studi di Firenze, Florence, Italy

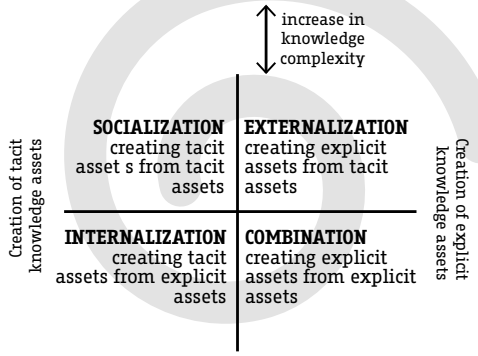
Vernacular knowledge represents the accumulated experience, wisdom and know-how shared by a given society or community of people, which have evolved over many generations within their particular ecosystem (Magni, 2016). Also called local, or traditional knowledge, it is a type of non-academic, practical and contextualised knowledge, which defines the social and natural relationships of a community with its environment.

Scientific knowledge, in its Western meaning, is distinguished from vernacular and local knowledge by its attributes of universality and objectivity. It is systematised in written records, and this allows it to reach a wider diffusion. Vernacular or local knowledge includes also the practical, the empirical, the sacred and the intuitive; it is generally tested over a long period of time and reinforced through processes of trial and error. Local knowledge dynamically uses communication channels that are not necessarily structured, such as oral communication or direct observation and is therefore seldom documented. This type of knowledge includes the entire cultural context in an interdisciplinary way, in fact the traditional community manages its natural context as a complete system where the various components interact with each other (Tharakan, 2015): from aspects related to living and building, to those related to land management, the production of food and the exchange of goods, to aspects related to social and cultural life, and well-being in general. Traditional knowledge governs the relationship between humans and what are known as ecosystem services, that is, the many and varied human benefits provided by the natural environment and healthy ecosystems (Everard, 2021). Hence, it is evident how the safeguard and transmission of traditional knowledge can make a formidable contribution towards sustainable development that reduces negative impacts on the environment and integrates in a balanced manner with the context.

Ikujiro Nonaka (1994) distinguishes tacit knowledge, which is difficult to formalise and communicate, from explicit knowledge, in other words knowledge which is transmissible through a formal and codified language.

Tacit knowledge is deeply rooted in the actions and thoughts of an individual in a specific context; it will therefore be made up partly of technical skills and partly of mental models, beliefs and perspectives which have become so settled that they are taken for granted and cannot be easily expressed. Explicit knowledge, on the other hand, is connoted in order to be easily expressed, captured, stored and reused, to be transmitted through databases, books, manuals and messages.

opposite page
European Heritage Training Course "Architectural documentation of traditional wooden architecture" at Kozichkovi Houses in Kotel, Bulgaria
(credits: European Heritage Volunteers)



SECI Model of Dynamic Knowledge Creation.
(Adapted from: Nonaka, 1995)

However, tacit and explicit knowledge are not separate entities, but rather interact in a mutually complementary manner in the cognitive activities of human beings. Nonaka and Takeuchi (1995) explain the interaction between these two types of knowledge through the SECI model, which has become the cornerstone of knowledge creation and transfer theory (Hoe, 2006). They proposed four ways in which knowledge types can be combined and converted.

- *Socialisation*: Tacit to tacit. Transfer of tacit knowledge between individuals through observation, imitation, experience, practice.
- *Externalisation*: Tacit to explicit. This is deemed as an especially difficult and often particularly important conversion mechanism to translate tacit knowledge into documents, manuals or procedures. The use of metaphors or analogies are cited as important externalisation mechanisms.
- *Combination*: Explicit to explicit. This is the simplest form. Codified knowledge sources (documents, for example) are combined to create new knowledge.
- *Internalisation*: Explicit to tacit. As explicit sources are used and learned, the knowledge is internalised, modifying the existing tacit knowledge of the user.

The methods through which the transfer of tacit local knowledge take place are usually the so-called 'horizontal"' methods. They are strongly oriented to learning by doing, through twinning, apprenticeship, travel, imitation, and mutual training between different experts. 'Vertical' tools are used instead when the knowledge is encoded and made accessible. Vertical methods are those commonly used in teaching lessons where the process of learning takes place following a hierarchical relationship.

In the processes of management and safeguarding of traditional knowledge, the involvement of the community is crucial: the community preserves knowledge through socialisation processes and enables its externalisation through the application of documentation and transmission strategies. When effective strategies and practices of management, dissemination and sharing exist, the community guarantees the processes of combination and internalisation.

Finally, the application of vernacular knowledge management and dissemination strategies can generate a positive return on the community, helping it to empower and promote sustainable incomes while reaffirming the value of their heritage both within and outside their communities.

With the advent of modernity and the industrial revolution, communities characterised by a system of relationships based on local knowledge have undergone an inevitable evolution. New materials, building processes, needs and ways of living have taken over, and gradually many of the principles and know-

how of traditional communities have been lost or have been deliberately abandoned. These include traditional knowledge about ways of conceiving and managing landscape, cities and buildings. The importance of safeguarding such knowledge lies not in wanting to reintroduce outdated patterns of living, but in understanding, by looking at the lessons of the past, how we can rediscover a deeper connection between the changing needs of our habitats and the environmental, social and cultural context in which our lives are framed. This issue is critical today, not only for addressing the challenges imposed by climate change and the scarcity of resources, but also for countering growing social distress, which is due in part to the widespread phenomena of the disintegration of relationships among members of a community, the loss of cultural identity, and the breakdown of the cooperative relationship between a community and the ecosystem in which it is embedded.

This chapter aims to investigate the more successful strategies to safeguard and transmit vernacular knowledge supporting sustainable development. The knowledge that we discuss concerns both tangible aspects (buildings, settlements, construction techniques) and intangible aspects, in other words the complex system of know-how that has shaped the tangible heritage and enabled its preservation over time. The chapter investigates strategies and tools for the documentation, transmission and management of traditional knowledge aimed at technicians and stakeholders, as well as strategies for its dissemination to the general public.Throughout the chapter we highlight how the digital transition has led to innovation in knowledge management methods and processes that are increasingly efficient, encouraging preservation and enhancement and enabling new markets and audiences to be reached.

References

Dipasquale L. 2020, *Traditional architectural heritage and local knowledge for a sustainable and resilient future*, in *Understanding Chefchaouen: Traditional knowledge for a sustainable habitat*, pp.39-65.

Hoe S.L. 2006, *Tacit knowledge, Nonaka and Takeuchi SECI model and informal knowledge processes*, «International Journal of Organization Theory & Behavior», vol. 9, no. 4, pp. 490-502, https://doi.org/10.1108/IJOTB-09-04-2006-B002.

Magni G. 2016, I*ndigenous knowledge and implications for the sustainable development agenda*, UNESCO, <https://unesdoc.unesco.org/ark:/48223/pf0000245623> (02/22).

Nonaka I. 1994, *A Dynamic Theory of Organizational Knowledge Creation*, «Organization Science», vol. 5, no. 1, pp. 14-37.

Nonaka I., Takeuchi H. 1995, *The Knowledge Creating Company*, University Press, Oxford.

Mecca S., Jorquera N. 2009, *An interdisciplinary approach to a cultural and architectural heritage*, in Mecca S., Dipasquale L. (eds.) *Earthen domes & habitats*, ETS, Pisa, pp. 153-156.

Tharakan J. 2015, *Indigenous knowledge systems. A rich appropriate technology resource*, «African Journal of Science, Technology, Innovation and Development», vol. 7, no. 1, pp. 52-57.

Everard M. 2021, *Ecosystem Services: Key Issues* (2nd ed.), Routledge, https://doi.org/10.4324/9781003182313.