



# The role of a “Civic University” in the frame of the Quadruple Helix approach to development: The paradigm of MED-QUAD project<sup>1</sup>

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Societies are witnessing profound changes and coping with a great variety of challenges, both foreseen and unexpected, for which are not fully prepared. The transformations at environmental, scientific, technological, cultural and social level force everyone to rethink the meaning and even the value of the human experience and urge the academic community, policymakers and decision-makers within higher education and wider society to find proper solutions.

Universities are at the center of this transformation process with their dual responsibilities at local and global scale, coping with the intrinsic difficulties in addressing local and global demands to contribute to a more equitable and sustainable society.

More and more, higher education sector is required to play as a social agent by exploiting the multiplicity of its knowledges as well as exploring teaching methodologies, curricula and the concept of lifelong learning.

Universities must analyse and interpret the current concept of university social engagement and social responsibility and reflect on how “glocal” engagement should be included in teaching, learning, research and institutional activities, governance and leadership. They should identify how the different social actors are involved in glocal engagement practices, and how they can interact with them.

MED-QUAD project provides an example of university civic engagement in the Mediterranean region, including EU (IT and GR) and non-EU institutions (EG, TN, JO, PA).

## 1. The “Civic University”

Originally Universities were embedded in the cultural and economic life of the cities everywhere in the world. In the 19th century they were required to support industrialisation by providing scientific advice and skilled labour, but, through the organisation of medical schools and hospitals, they contributed also to improve the health and well-being of the population. Gradually, during the 20th century, a changed policy concerning the higher education systems with an increasing central governmental support, produced a disconnection of universities from the places in which they were located.

In the last 20 years, crisis and challenges of any kind, are forcing universities to revise their role and to reconnect with their Cities, namely, to “re-invent the civic university” [3].

This means delivering benefits to society as a whole: local, regional, national, global by rediscovering the role of “anchor institution” in place making, innovation, economic and social development.

But realizing the potential of a civic university does not depend only on what the university does, but also on the capacity of its city partners in the public and private sector.

For a university, being anchored in a specific territory, requires, in one side, the identification of the academic practices that are relevant to the place where academics live and work as citizens, and on the other side, the solutions of the problems faced by the communities where they belong, by playing their role of repository and producers of that multidisciplinary knowledge necessary for coping with the increasingly complex challenges faced by the global society.

On the other hand, Cities are increasingly becoming direct responsible for the local economy, for the well-being and education of their citizens, for the environmental and cultural heritage preservation and enhancement.

Cities and universities should set priorities jointly and work together to achieve them with the awareness that this new approach benefits both sides. Thus, the city engagement, for the civic university, represents also an opportunity for exploring new research methods and fields and stimulating the creative potential of its academic community [6]. A civic university is characterized by its ability to integrate its teaching, research and engagement missions with the outside world without reducing their quality.

In this renovated scenario, universities and city partners must work in new ways: Higher Education provides intellectual and human capital for the city, public sector develops coherent policies linking territorial development to innovation and higher education, private sector invests in people and ideas for creating growth.

For achieving these goals new methods are needed. Concepts such as “Quadruple Helix”, social innovation and living laboratories are some new tools for a multi-inter-disciplinary and trans-partner working, fundamental for addressing the new societal challenges.

<sup>1</sup>MEDiterranean Quadruple helix Approach to Digitalisation «MED-QUAD» - ENI cbc MED Strategic Project n. B\_A.0088\_2.1

## 2. The new paradigm

The Quadruple Helix (QH) model of development integrates to the three pillars: research, industry, government, the “civil society” so as to provide additional perspectives to the (territorial) innovation ecosystem, where all stakeholders are active players in jointly experimenting new ways of doing things and creating new services and products.

Thus, the QH approach integrates the social component to the previous Triple Helix (TH) model where the three components, Universities, Enterprises and Governments, cooperate on the base of the existing University/Enterprise, University/Governments, Enterprise/government relations, focusing on one or another of the bilateral cooperation. Indeed, TH model is based on the “Knowledge Triangle”: Education-Research-Innovation that, focused on the concept of knowledge economy, proved to be not sufficient to support development and innovation.

QH model moves towards the concept of knowledge society/democracy with the addition of a fourth sphere.

This swift reinforces the role of universities as Civic Universities in the implementation of their third/fourth mission.

Indeed, including “civil society” means considering (among others):

- Citizens, as users requiring new services and products: user-driven innovation
- Culture-based and media-based public, providing multiculturalism and creativity in hard and soft sciences: multi (local/national/global)-level innovation
- External scientific experts, as advisors for governments: research/industry-driven innovation
- Non-profit organisations, as patterns for combination of public/private funding
- Arts and artistic research, as a new form of knowledge creation.

Thus, a Quadruple Helix approach to science, research and innovation that embraces university, business, government and civil society within the City, requires a changing process in the functions of the four components, with the awareness that these “four helices”, by joining forces, will be able to align goals, amplify resources, mitigate risk and accelerate progress. However, in order to cooperate, the four components, need to find or better, to build up, a place (living labs, co-working places) where they can discuss the problems and propose the possible solutions as well as a methodology for implementing the activities identified as those capable to stimulate and exploit the innovation potential.

There is not a unique recipe to establish a QH development model. The methods and tools must be carefully chosen according to the several variables that characterize the territory and its university.

The QH model proposed by MED-QUAD project, offers a huge opportunity, but the 4 components need to acquire competences for exploiting the capacity of ICT to stimulate long-run endogenous economic growth.

The concrete activities outlined in the project, will adopt the twelve principles of Open Innovation 2.0 that clearly highlight how SMEs, in order to survive, need to establish trusted relations to the other components, by means arrangements that may be implicit (trust culture) or explicit (formal contracts), but in any case resulting from a people-to-people cooperation [1].

Concerned territory – as well as the Digital Economy - is characterized by small and very small sized companies, so Open Innovation 2.0, mainly discussed in large-scale companies, is not fully suitable. Thus, in order to create the right environment for a balanced and equally committed cooperation among the 4 helices, the project will adopt the “Embedded Innovation 3.0” paradigm, where the notion of “embeddedness” is introduced to mark the increasing challenge of integrating firms into their surrounding communities to assure the absorption of their exploitable knowledge [7,8].

The main actors are the universities which will improve their capacity to be and act as “Civic Universities” in strict cooperation with the cities of which they are part as “anchor” Institutions [5,6] together with the socio-economic stakeholders and the citizens, who all will learn how to contribute in local planning processes and in shaping the local economies.

The project entails organisational innovation, not only as supporting factor for product and process, but also as tool for improvement of firms’ ability to learn and utilize new knowledge and technologies through a wise management of external relations, according to Oslo Manual (2005).

The first innovative approach proposed by MED-QUAD is the use of new organizational methods in the firm’s relations with research institutions, (local) government and society.

The aim is to create an environment where the key actors cooperate for coping with the limitations of the “technological paradigm” designed by Ranga and Etzkowitz (2013) for the Triple Helix Model [2], since in the region the knowledge space scarcely takes advantage of universities focused on applied sciences, and the consensus space suffers from a sound institutional support.

The project intends to add a societal perspective in such a manner that the systematic way of pursuing research/technology-driven innovations (TH), will be shifted to a systematic way of pursuing demand- or user-oriented innovation (QH).

## The MED-QUAD project expected results can be classified in three main categories:

1. Innovative approaches, strategies and tools for the creation of a proper innovation ecosystem that, tailored on the specific characteristics of each territory, is able to boost innovation,
2. Methodologies and means for enhancing competencies, capacities and skills of decision and policy makers in the local and national governmental departments in charge of territorial and economic development,
3. Concrete examples of methodologies and tools application.

**In the first category** there is the proposed QH model that integrates different approaches:

User-centered (TH+users), Firm/University-centered and Public/Firm-centered, aimed at enhancing in an interconnected way social inclusion, user centrality, creativity and public services.

This integration makes the model interdisciplinary and trans-disciplinary encompassing the whole disciplinary spectrum, thus going beyond the Quintuple Helix model where the inclusion of the environment as fifth helix is not sufficient to ensure the achievement of the UN Sustainable Development Goals.

**In the second category** there are the Training activities and the Thematic Seminars aiming to provide new indicators for measuring innovation.

**In the third category** there are the two cross-border Living Labs and the City co-working spaces where real life problems are analysed and approached.

All of them are sustainable and replicable and provide suitable and efficient tools for addressing the development priorities of Universities, Governments, Enterprises and Citizens.

## References

- [1] Curley M., Salmelin B., Open Innovation 2.0. The New Mode of Digital Innovation for Prosperity and Sustainability, ISBN: 978-3-319-62878-3, Springer, 2018
- [2] Etzkowitz H. and Leyesdorff L., The dynamic of innovation: from national systems and "mode 2" to a triple helix of university-industry-government relations, Research Policy, (2000) 29: 109-23
- [3] Goddard J., Re-inventing the Civic University, London: NESTA, 2009
- [4] Goddard J. and Vallance P., The University and the City, Abingdon: Routledge, 2013
- [5] Goddard J., Kempton L. and Vallance P., Universities as anchor institutions in cities in a turbulent environment: vulnerable institutions in vulnerable places, Cambridge Journal of Regions Economy and Society, 2014, 7(2), 307-312
- [6] Goddard J., The strategic Positioning of Cities in 21st Century Challenges: The Civic University and the City, GUNi Report 2017, 115-127
- [7] Hafkesbrink J., and Evers J., Innovation 3.0: embedding into community knowledge - The relevance of trust as enabling factor for collaborative organizational learning, XXI ISPIM Conference "The Dynamics of Innovation", Bilbao, 6 to 9 June 2010
- [8] Hafkesbrink J., and Schroll M., Innovation 3.0: embedding into community knowledge - collaborative organizational learning beyond open innovation, Journal of Innovation Economics & Management, (2011)-1 (n°7) 55-92

## About Prof. Anna Tozzi

### Education and training:

1970: Master Degree in Mathematics

### Relevant Professional Experience:

1970--1973: Research fellow CNR (National Research Council)

1974--1983: Assistant Professor, University of L'Aquila

Tasks: Research and teaching courses of Topology, and General Mathematics

Since 1984: Professor in Geometry, University of L'Aquila

### Teaching activities:

Topology, Algebraic Topology, Mathematical Logic, Geometry and Linear Algebra

## Research Activities:

- 1998--2000 and 2000--2002: Coordinator of local Unit of the National Research Project-PRIN "Constructive Methods in Topology, Algebra and Programme Analysis"
- 2002--2004 and 2004--2006: Coordinator of local Unit of the National Research Project-PRIN "Constructive Methods in Topology, Algebra and Information Technology"
- 2008--2010: Member of the Research Unit of Padua University for the National Research Project-PRIN "Constructive Methods in Topology, Algebra and Information Technology"
- 2012--2014: Member of the Research Unit of Padua University for the National Research Project-PRIN "Logical Methods of Information Management"
- 1994--2010: Organiser and scientific responsible of several Scientific Seminars and 5 International Conferences on "Categorical Topology"  
- Author of 32 scientific papers and 5 didactic publications
- 1996--2003: Erasmus Coordinator Faculty of Sciences, University of L'Aquila
- 2004--2018: Vice-rector for the International Relations and Projects, University of L'Aquila
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