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THE MEDITERRANEAN AS AN OPEN LIVING LAB

Jesse Marsh and Artur Serra

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IEMed.

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Foreword

The Mediterranean region is at a historical crossroads. 70% of its 500 million strong population is under 30 years of age, making it one of the youngest regions in the world. And the majority of this generation is already connected to the Internet. At the same time, the Mediterranean is the region with highest level of youth unemployment in the world. This young digital generation, despite its great potential, has yet to find the ways to transform the economic, social, political and cultural structures that are hindering its own development into a new vision for the future.

The Mediterranean is also the region that gave birth to the father of Algebra, the Persian mathematician al-Jw rizm : indeed the term 'algorithm', a key concept of the digital era, was named after him. It is the region where the Arab system of numbering was introduced to Western culture, giving rise to the first discoveries in Astronomy and the work of the Greek mathematicians in Alexandria. Al-Andalus, in the XI Century, gathered the best scientific minds of the time in the Iberian Peninsula, while nearby a monk named Raimund Llull first proposed a combinatorial thinking machine, in the quest to convert Muslims to Christianity. The Mediterranean region opened up the first global routes of modern times thanks to the Venetian Marco Polo and his travels to China, emulating the expedition of Colon to the "Indias". Finally, it gave birth to the scientific revolution with Galileo, the first to explain the Cosmos in mathematical terms.

Young Mediterraneans thus not only hold the latest technologies in their pockets, they hold the roots of those technologies in their history. Can this also shape the potential for their future? There are strong possibilities for the Mediterranean to rediscover its role as a technology hub in the digital era, but this can be a double-edged sword. Digital technologies, while they offer new opportunities, are also proving to be instruments of immense concentrations of wealth and power. In this context, is technology only a new form of cultural and economic domination, or can it reveal new opportunities for the Mediterranean societies?

This paper holds that the only way to ensure the latter scenario is to accompany technological development with innovations in the Mediterranean area's societal structures, namely all those aspects of life that are in some way affected by those technologies. The innovative re-structuring of social organisation, public services, economic transactions, governance models, etc. often taking advantage of and enabled by the new technologies, allows for different cultures and societies to master the new technologies through social innovation rather than submit to its consequences as passive players. Such social innovations cannot be planned by experts and governments. They rather emerge through the connection of micro-transformations that are born through

small local experiments that then scale up. Government can offer a vision, promote and coordinate, but it cannot impose a grand design from above, since government itself needs to innovate together with the processes that it aims to encourage.

This great region is therefore facing a double historical challenge: to become a distributed digital hub and a social innovation hub at the same time. A young and emerging generation of Mediterranean researchers and innovators sees this vision, and is committed to building innovation practices and initiatives across the whole region. The Mediterranean of the 21st century needs to foster innovation that is both social and digital, from Lebanon to Spain and from Greece to Tunisia, where countries, regions and cities are looking for models of innovation that are more open, technologically advanced, and adapted to their needs and cultural environments.

One expression of such a model can be found in the emergent phenomena of Open living labs, Fablabs, media labs, and similar bottom-up innovation structures in Mediterranean countries. The Living Lab model, one of the earliest to emerge, is represented by the European Network of Living Labs (ENoLL), which counts today over 150 active members worldwide. Over the past 10 years, ENoLL has developed know-how and services on open innovation, value co-creation and validation in real-life scenarios, especially at the regional and city level. An interesting approach is now under discussion in ENoLL: Can Living labs become an emerging "social technology", a social technology that can transform the local, national and global innovation ecosystems?

The European Commission in his paper "Open Innovation, Open Science and Open to the World" is offering this new vision for 2030: "*Scientists, citizens, publishers, research institutions, public and private research funders, students and education professionals as well as companies from around the globe are sharing an open, virtual environment, called TheLab.*"[1] Can we work to consider the Mediterranean itself as such a Lab?

This paper results from two seminars entitled "*The Mediterranean as an open living lab*" and jointly organised by the IEMed and ENoLL with the goal of exploring a region-wide network of innovation hubs that could generate a Mediterranean way of developing open innovation with its own idiosincracy: the Mediterranean as a Living Lab.

The first seminar, held on 17-18 November, 2016, at the Citilab in Barcelona, gathered entities, organizations and individuals from around the region that believe in and are working to develop a citizen-driven innovation approach. The second, organized the following July 3-4, 2017, in Basaksehir (Istanbul), further focused on some of the key

1 https://ec.europa.eu/digital-single-market/en/news/open-innovation-open-science-open-world-vision-europe

challenges in the region: youth unemployment, new models of education and the challenge of refugee newcomers.

Here we develop the outcomes of these events to show that the conditions for building a Mediterranean wide innovation network exist, and call on Living labs, fablabs, citizen labs, social innovation organizations, and co-working spaces throughout the region to establish a network of labs to share assets, innovations, experiences, goals and challenges. From Istanbul to Barcelona, from Palermo to Nice to Tel Aviv, from Cairo to Zagreb to Beirut, all of the initiative that have come together have valuable expertise and experiences to share and can learn together while establishing and enriching their cooperation.

Introduction

This paper proposes a new approach towards building a common space of innovation in the Mediterranean region, based on collaborative, citizen driven social innovation. It identifies the conditions for the emergence of new social and organisational models based on the specific assets of the Mediterranean people and societies when viewed in an innovation perspective. It then highlights a series of mostly small-scale bottom-up initiatives that demonstrate the potential of citizen-driven innovation throughout the region. Their possibilities for collaboration and networking, framed by a new form of policy support at different levels, are explored as a means of scaling up and out. Such a scenario is then put forth as a proposal for the Mediterranean as a Living Lab: a cooperation framework for carrying forward the vision of a Mediterranean model of innovation for prosperity based on the region specificities.

Challenges and Opportunities

The Mediterranean region represents, in many ways, a sample of the planetary challenges facing the world today. Climate change is advancing rapidly, despite progress made towards global agreements: droughts, floods, and other extreme environmental events are already affecting the daily lives of people in all areas of the world as never before. The Mediterranean's enclosed sea region is particularly sensitive to water pollution and the collapse of ecological systems, while the mainland is witnessing a rapid advance of desertification.

While addressing climate change requires increasing resources, the global financial system has yet to recover from the crisis of 2008. Feeble signs of economic recovery are counterbalanced by a substantial increase in inequality. These two factors, together with the spread of local conflicts, are leading to unprecedented levels of mass migration, with thousands dying yearly in the Mediterranean sea itself. Even the European Union, and especially some of its southern members, is going through turbulent economic and financial times that are questioning its very essence.

The End of Certainty

In many areas of the Western world, citizens are reacting to these challenges by rejecting globalisation, with a nostalgic, inward looking isolationism coupled with a rise in racial and religious discrimination. This in turn fuels the manipulation of religious conflict as an entry point for the dominance of territories and resources. The very frameworks that have shaped social, economic, and political organisations for the past generations are increasingly being called into question.[2] The economic models, global trade agreements,

2 See inter alia: Streeck W. (2016), *How Will Capitalism End? Essays on a Failing System,* Verso Books; Mason, P. (2015) *Postcapitalism: a Guide to our Future,* Allen Lane; Brennan J. (2016) "Is this the end of democracy?", *New Statesman*, 21 December.

and democratic systems seem increasingly to have failed to deliver the expected benefits. The US Army War College calls this the VUCA period: a time of Volatility, Uncertainty, Complexity and Ambiguity[3].

Yet the Mediterranean countries are not the main drivers of the nostalgic backlash: Brexit and Donald Trump emerged from the centres of globalisation, not the peripheral regions that suffer its negative consequences most. It is instead a vision of a better future that drives both the emerging farm cooperatives in Spain and Italy and the desperate attempts to cross the Channel of Sicily. Is that future an idealised copy of false illusions, or are we witnessing an emergent model with a new degree of resilience, as an alternative to Western societies failing models? This paper looks at evidence that supports the latter hypothesis.

From Problems to Challenges, to Assets

Let us first analyse three structural features of the Mediterranean region: demographics, unemployment, and cultural and religious diversity. Each of these issues is often considered in a negative light, but in the current situation of global flux we will instead look at them as potential assets. Demographics is the one feature that places the northern and southern shores of the Mediterranean in stark contrast, with roughly half the population in North Africa and the Eastern Mediterranean countries aged between 15 and 24 (2011 statistics)[4] as compared to less than 20% across the Mediterranean EU regions.[5] Demographics are important in a society characterised by rapid technological evolution; the term "digital native" defines those born from the 1990s onward as people who "think and process information fundamentally differently from their predecessors."[6] While the EU Member States may be more technologically advanced as social and industrial systems, the potential for innovation from a population of 50% digital natives should not be underestimated, and creates a new potential for exchange between the northern and southern shores.

The high percentage of youth population in the Mediterranean is often associated to the high level of unemployment, with 30-40% in Egypt, Tunisia and Palestine. Differently from demographics, a similar situation is to be found in the Southern EU Member States, with the highest rates in Greece (23.0 % in October 2016) and Spain (18.4 %) compared to 9.6% for the EU overall.[7] Unemployment is of course a severe hardship for those involved, both socially and economically, but can equally be a driver for change. Just as unemployment is cited as a major force for the Arab Spring movements of 2010, it more broadly leads to a disenchantment with current economic and political structures. Particularly when employment is not sufficient to guarantee well-being even when

3 https://en.wikipedia.org/wiki/Volatility,_uncertainty,_complexity_and_ambiguity

4 Eurostat http://ec.europa.eu/eurostat/statistics-explained/index.php/Youth_statistics_-_North_Africa_and_Eastern _Mediterranean, and following statements related to unemployment and the Arab Spring.

5 Eurostat http://ec.europa.eu/eurostat/statistics-explained/index.php/Being_young_in_Europe_today_-_demographic_trends

6 Prensky, M. (2001) "Digital Natives, Digital Immigrants" On the Horizon (NCB University Press, Vol. 9 No. 5, October

7 Eurostat http://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment_statistics

available (with pundits predicting the end of jobs as we know them)[8]unemployment forces a search for alternative means of survival. The continuous diffusion of accessible information technologies – half the world's adult population owned a smartphone in 2015, a figure due to reach 80% by 2020[9] – makes options such as virtual currencies, sharing economy, co-working, and start-ups an increasingly attractive prospect.

Finally, although the radical manipulation of religious and cultural diversity is a cause of unrest, conflict and mass migration throughout the region, affecting the entire globe, diversity is also recognised as a driver of creativity and innovation. It goes without saying that the Mediterranean is one of the richest areas in the world in terms of cultural diversity and heritage, having been crossed by civilizations since history has been recorded. Indeed, the 1995 Barcelona Process initiated the Euro-Mediterranean Partnership as an answer to the "clash of civilisations" theory[10] posing inter-cultural dialogue as a guarantee for peace and prosperity.

Although other geopolitical and economic concerns overcame the initial commitments (with the Union for the Mediterranean stepping in to add a further step in the institutionalisation of the regional cooperation and develop a more project-based logic), culture and creativity, the original grounds of the Euro-Mediterranean partnership, are now assuming a more central role in the economy in recent years, as key assets for competitiveness and prosperity.

The EU declared 2009 to be the "European Year of Creativity and Innovation" to highlight the "contribution of creativity and innovation to economic prosperity as well as to social and individual wellbeing." The CreativeMED project introduced in 2014 the concept of "territorial innovation" to specifically link innovation potentials to the specific nature of the territorial capital in a given place.[11] A 2015 study by Petrakis et. al.[12] analyses Eurostat data to affirm that "culture affects innovation and competitiveness capacities, and thus growth prospects, *irrespective of prevailing macroconditions*." (our italics). The question then becomes: if the heritage of cultural richness that characterises the Mediterranean region is potentially one of its greatest assets, what are the enabling conditions to realise that potential to its fullest.

Which Kind of Innovation?

Traditionally, innovation has been defined as "the application of better solutions that meet new requirements, unarticulated needs, or existing market needs"[13] This definition is based on the Oslo Manual[14], an initiative of the OECD, that still is the foremost

8 Pearson T. (2015), The End of Jobs: Money, Meaning and Freedom Without the 9-to-5, Lioncrest.

9 Economist: http://www.economist.com/news/leaders/21645180-smartphone-ubiquitous-addictive-and-transformative-planet-phones

10 Huntington, S. (1993) "The Clash of Civilizations?", Foreign Affairs, Vol. 72, No. 3, pp. 22-49.

11 Marsh J. et al (2015), The CreativeMED White Paper, ETC MED CreativeMED project consortium.

12 Petrakis P., Kostis P., Valsamis D. (2015), "Innovation and Competitiveness: Culture as a long-term strategic instrument during the European Great Recession", Journal of Business Research, Vol 68, n. 7, pp. 1436-1438, Elsevier.

13 Wikipedia: https://en.wikipedia.org/wiki/Innovation

14 http://www.oecd.org/sti/inno/oslomanualguidelinesforcollectingandinterpretinginnovationdata3rdedition.htm

international source of guidelines for the collection and use of data on innovation activities in industry. In the digital era, however, innovation models are changing: the pervasive character of the Internet and of information and communication technologies in general has extended the reach of innovation to all aspects of social life and not only those governed by market transactions.

Historically, the development of the Internet and the World Wide Web occurred in governments and universities before spreading to commercial purposes. Indeed, Mariana Mazzucato,[15] in her *Entrepreneurial State* (2011), argues that innovation in the digital era is based in the leading role of public institutions in generating and using technological innovations before the market develops, as opposed to the prevailing view of innovation driven by individual entrepreneurs, with the State left only to provide social services to fix what the market cannot provide.

The European Union has placed innovation at the heart of its EU2020 strategy, as "vital to European competitiveness in the global economy". Nevertheless, only recently is the EU beginning to understand the key role that public institutions can have in promoting this new kind of innovation. A recent document published by Carlos Moedas, Commissioner of Research, Science and Innovation, proposes a policy of "Open Innovation, Open Science and Open to the World"[16], insisting for the first time that innovation in the digital era should be open to everyone.

For the Mediterranean area, it is equally important to choose which kind of innovation trajectory to pursue. Here again, we can affirm most effective means for steering innovation towards taking all the dimensions of sustainability into account is to directly involve citizens and consumers in the innovation process itself. This may seem banal, but effectively engaging citizens as drivers of innovation requires a substantial re-thinking of current structures and practices. Many efforts only open up their innovation processes in part or at specific moments along the way, since it is difficult for an industrial research centre or local authority to fully relinquish control of the process to external stakeholders. Only a deep and thorough commitment to citizen engagement, however, will really be able to lead to a full realisation of the innovation potential among societies and citizens of the Mediterranean area.

The Open Living Lab approach

The Open Living Lab concept is based on this citizen-driven innovation model, offering an approach that is sufficiently structured to reassure all those involved that the process delivers concrete results.

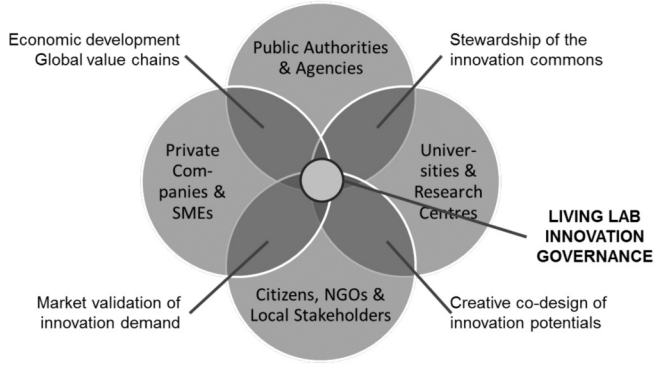
15 https://www.demos.co.uk/files/Entrepreneurial_State_-_web.pdf

16 https://ec.europa.eu/digital-single-market/en/news/open-innovation-open-science-open-world-vision-europe

> "Living Labs (LLs) are defined as user-centred, open innovation ecosystems based on a systematic user co-creation approach integrating research and innovation processes in real life communities and settings. LLs are both practice-driven organisations that facilitate and foster open, collaborative innovation, as well as real-life environments or arenas where both open innovation and user innovation processes can be studied and subject to experiments and where new solutions are developed. LLs operate as intermediaries among citizens, research organisations, companies, cities and regions for joint value co-creation, rapid prototyping or validation to scale up innovation and businesses. LLs have common elements but multiple different implementations."[17]

The organisational model of Living Labs is based on the 'quadruple helix', namely a partnership where four different types of stakeholder come together: public, private, research, and citizens. The quadruple helix is not just an open assembly, but it really engages each type of actor in a new role with respect to the others, breaking away from consolidated roles of power to adopt a peer-to-peer dialogue, as shown in the figure below.

The Quadruple Helix Model



The Living Lab method engages the different stakeholders of the quadruple helix in what is known as "co-design", where they come together to reciprocally challenge assumptions, bring in new perspectives, promote creative thinking, and validate possible solutions from a broad range of standpoints. The specific methods employed draw on approaches such as 'design thinking', 'user-centred design', 'open innovation' and 'service design' with three common features:

- Engagement: all stakeholders are involved throughout the innovation process
- Recursiveness: rather than a linear development path, design follows several iterative cycles

17 The European Network of Living Labs: http://enoll.org/node/1429

- Concreteness: using approaches such as fast prototyping, development occurs in real-life settings

By engaging end users from the beginning, Living Labs are able to produce innovations that are more efficient, effective, and relevant. The impact can however also be broader and deeper: the shift in roles leads to organisational innovations in the public sphere, re-directs the strategies of research centres towards concrete issues, helps businesses see the market potential of real local needs, and empowers citizens as active participants in their future destiny. The bottom-up dimension of citizen-driven innovation processes in fact often generates new approaches with an effect on both the content and the methods of future policies and strategies.

The Potential for the Mediterranean

The main tenet of this paper is that the Living Lab approach constitutes an important way forward for the peoples in the Mediterranean region to address the problems and issues they face and to build a new partnership bridging nations and cultures. As the evidence for this potential is explored, three questions will need to be kept in mind:

1.. Do Living Labs have a role in the Mediterranean?

The Living Lab model was born at MIT and further developed in the Nordic European countries before spreading to the several hundred in operation globally. Is it thus yet another foreign development model being imposed on the Mediterranean? There is the risk that the values of openness and citizen participation are at contrast with cultures that are more closed and intimate, particularly when it comes to politics and business. The question is then if the Living Lab model is sufficiently flexible, or aligned with emergent cultural trends in the Mediterranean, to be able to adapt.

2.. What priority issues should innovation address in the region?

Initiatives for the Euro-Mediterranean generally tend to identify a set of thematic priorities for cooperation, in order to focus efforts towards achievable goals. Is innovation a separate area for cooperation or is it transversal to all issues? Given that the thematic priorities identified previously are well-known, the question is whether bottom-up initiatives fit into this mould or suggest a different framework for collaboration that focuses more on the 'how' than the 'what'.

3.. Is a specifically Mediterranean dimension of innovation possible?

The preceding paragraphs identify specifically Mediterranean assets and potentials, not always aligned with the prevailing Silicon Valley style models of innovation used as a

benchmark. Is there a specifically Mediterranean model of innovation that is capable of drawing on its particular strengths and more directly addressing its particular problems? Here the question is on the one hand structural – if different processes and dynamics emerge with different results – but also strategic: it may be necessary to proclaim a Mediterranean model of innovation in order to be able to critically assess imposed models and be free to steer an autonomous course from within the region itself.

Emergent Trends

In this section we'll take a closer look at different forms of co-creation initiatives within or similar to the Living Lab model that are emerging across the Mediterranean space. These are nearly all bottom-up processes, namely initiatives set up by local stakeholder in response to specific problems or opportunities. They therefore reflect special needs of Mediterranean territories and the search for new ways to respond to both local and global challenges.

These initiatives are driven by different approaches and enabling conditions, which we can identify as three general types:

- *Connecting with global economies:* These are initiatives that create the structural and institutional conditions for innovation, following formats and models that are diffused at the global level, such as technology parks, incubators, or innovation spaces. The aim is to align regional economies with global flows and networks, while highlighting the specific contribution and added value of Mediterranean researchers and innovators.
- *Skills development:* These initiatives focus more on capacity building, empowering especially the younger population with the skills required for new jobs and business opportunities; this also includes explorations of new ways to organize work.
- *Social innovation:* These initiatives directly engage with public institutions and local communities to propose new ways to organise services and livelihoods that better capture the potentials of digital technologies while responding to concrete local needs.

These are different ways of interpreting and applying the Living Lab model of citizen-driven co-design with digital technologies, yet they all show a strong relevance to meeting the challenges faced by the Mediterranean peoples in their ability to respond to a wide range of challenges. More specifically, they emphasize how the key issue of youth unemployment can be addressed through a combination of offering new opportunities, building skills, and opening up to new social and institutional roles.

Connecting with Global Economies

As innovation increasingly becomes the key for competitiveness and prosperity, industry and policy makers as well as citizen groups and associations are constantly searching for ways to create the conditions for innovation to happen, which includes both the promotion of inventiveness as well as harvesting its fruits in business and market environments.[18] Efforts to promote innovation partnerships – science parks, innovation

18 https://ec.europa.eu/growth/industry/innovation_en

hubs, business incubators, etc. – have been developed as transferrable models that can in theory be adapted and applied to any region in the world.[19]

The Basaksehir Living Lab

One of the most promising areas for developing living labs are the peripherical areas of the big metropolitan areas of the Mediterranean.
Basaksehir is a new town established the the east of Istanbul as a district seat in 2009, the same year as the inauguration of its living lab. With more than 300.000 inhabitants, this district is a real laboratory for a new generation of people coming from the rural setting to urban life, including a large number of war refugees from the Middle East.
https://en.wikipedia.org/wiki/Ba%C5%9Fak%C5%9Fehir
http://basaksehir-livinglab.com/BLL/home/

The early partnership models developed such hubs around the physical presence of a world class university or multinational technology company to speed the global uptake of innovations; they thus have a relatively restricted scope of application, in practice limited to the more economically advanced regions on the European side of the Mediterranean. Over the last decades however, the internet has led to more widespread access to scientific knowledge, the empowerment of more peripheral universities, and, as a consequence, the development of greater opportunities to carry out research in a more diffused, connected scientific community.[20]

The Berytech Group

The Berytech Group has been pioneering the Lebanese entrepreneurial ecosystem since 2001.
Smart Parks, Incubator/Accelerators, and three Innovation Funds join up with supporting systems for mentorship, business support, etc.
In the 2002-2015 period, over 100 Startups have been created, 220 companies hosted, 1,600 jobs created, and 3,000 entrepreneurs supported with more than $500,000 in grants and $70 Million in investments to startups.
http://berytech.org/

In parallel, the increased globalisation of value flows, the decentralisation of production and above all the flattening of management hierarchies has led to a greater ability of

19 UNCTAD secretariat, "Policies to promote collaboration in science, technology and innovation for development: The role of science, technology and innovation parks", 9 February 2015, available at http://unctad.org/meetings/en/SessionalDocuments/ciid30_en.pdf.
20 Olivier Dumon, "How the Internet Changed Science Research and Academic Publishing, Creating the New Research Economy", Huffington Post, http://www.huffingtonpost.com/olivier-dumon/how-the-internet-changed_b_2405006.html.

industry to explore new territories (also in the physical sense) and to extend their reach to hitherto unexplored territories. While globalised production continues to search for an ever lower cost of labour (a double-edged sword for many Mediterranean regions), the knowledge component of modern industry has become increasingly fluid in the search for talent – wherever it may be – as well as territorial attractiveness.[21]

Applying these approaches across the Mediterranean regions aims to modernize economies and create employment by linking local talents and nascent enterprises to global economic systems. In this process, incorporation of the Living Lab approach into the research and innovation agendas of such initiatives can prove to be a key determinant of success, for three main reasons:

1. The open and inclusive nature of the Living Lab method allows for a greater possibility of unexpected and creative solutions; in this context, the multi-cultural creativity of Mediterranean peoples demonstrates its unique capacity to "think out of the box" and thus offer a particular contribution to user-driven approaches.
2. The degree to which the Mediterranean territories are particularly subject to the key global challenges of massive unemployment, climate change, etc. makes its territories an ideal testing bed for solutions to these challenges. The user-driven approach works best when in fact the users in question have the most to gain from new solutions, so engagement with Mediterranean populations helps to identify relevant new market segments.
3. One of the key determinants of success of an innovation hub is its ability to attract talent; attractiveness of place, including climate and geography, plays an important role here. In addition, with the spread of homogeneous global products, cultures and markets, *authenticity* and *provenance* are emerging as key determinants of real added value.[22] Engaging with local end users thus deeply connects businesses and researchers with local peoples and cultures, and in this regard the Mediterranean regions both North and South have a unique value proposition to offer.

In recent years, open and transferrable models have emerged – driven more by citizen innovation movements than industrial research – that take these Mediterranean potentials even further. These initiatives are generally based on commons-based peer production, meaning that participating individuals share the results and products as well as the means, methods and experience gained from collaboration as a resource for further development.[23] A second common denominator is that a specific format is more or less rigidly defined as a basis for communication and collaboration within a global network of locally driven.

21 Loris Servillo, Rob Atkinson, Antonio Paolo Russo, "Territorial attractiveness in EU urban and spatial policy: a critical review and future research agenda", European Urban and Regional Studies Vol 16, Issue 4, 2012.

22 UNESCO World Heritage Sustainable Tourism Toolkit, Guide 7: Adding value through products, experiences, and services. Available at: http://whc.unesco.org/sustainabletourismtoolkit/guides/guide-7-adding-value-through-products-experiences-and-services.

23 From the Peer to Peer Foundation: http://wiki.p2pfoundation.net/Commons-Based_Peer_Production.

The FabLab Network

The FabLab network lead by MIT includes members that meet the minimum requirements of equipment and activities and are approved according to a peer review process.
Today, the network counts over 1,000 FabLabs globally, including many Mediterranean countries such as for example Spain (49), Italy (141), Greece (3), Turkey (5), Morocco (5), Tunisia (3), Egypt (9), and Lebanon (1).
http://www.fabfoundation.org/index.php/fab-labs/index.html

Examples of such networks include:

- *FabLabs:* open laboratories furnished with a minimum set of digital fabrication devices – 3D printers, laser cutter, Computer Numeric Control (CNC) machinery, etc. – that aim to empower citizens to easily build prototypes and share and produce their own designs. This network was constituted and managed by MIT.[24]
- *Co-working spaces:* shared working environments, normally office spaces, that attract free-lance professionals of different disciplines, often working for different clients. As a flexible alternative with a strong community dimension, co-working initiatives aim to create employment opportunities while emphasizing the benefits of multi-disciplinary collaboration. Co-working is a rapidly spreading approach without a single global network, as there are a range of solutions and approaches.[25]
- *Impact Hubs:* the Impact Hubs started as a network of co-working centres but have since evolved as incubators focused on social issues and the development of social enterprises.[26]

These initiatives are less focused on the industrial economy and more on innovation and knowledge networks, although there are many examples of industrial participation in both FabLabs and co-working spaces. The aim is less to "create jobs" and more to "create employment", with an emphasis on both economic and social value.

Finally, the Living Lab is itself an innovation format with a global network, the European Network of Living Labs (ENoLL).[27] As a predecessor to the above examples, the concept of Living Lab to some degree subsumes all of the above models – there are numerous members of the ENoLL network that are also FabLabs, co-working spaces, Impact Hubs, etc. – while maintaining the emphasis on the process aspect of co-design through user engagement.

24 https://www.fablabs.io/
25 http://wiki.coworking.org/w/page/16583831/FrontPage
26 http://www.impacthub.net/
27 http://enoll.org/

Skills development

A second type of initiative focuses on increasing the ability of individuals/citizens to actively engage with new technologies and use them to create new opportunities, particularly in terms of employment. The aim is to increase the viability of the more institutional and structural approaches described above, as well as to directly address unemployment at the broader level. Indeed, computer science is still a job market with significant skills shortage worldwide.[28]

The rapid developments of information technologies and the internet are not only transforming the way we live and work, but also shifting the profile required for active participation in society both as a citizen as well as a worker. The skills required can range from being able to make a simple phone call with a smartphone (a real issue for many elderly people) to interacting on-line with a public administration, to getting a job as an electronics engineer. This poses a significant challenge for educational systems, for a series of reasons:

- Educational systems generally target youth, when in fact it is the older population at greater risk of being cut out of opportunities
- The new technologies require intuitive and reasoning skills as well as hands-on interaction, in a way that is not always possible through formal education methods.
- Given the rapid change in technologies, by the time a traditional education system has trained teachers and adopted new curricula, the required skillsets have changed.

STEM learning in Israel

The Makash programme was established in 1989 to advance ICT education in Israel, establishing a network of some 300 schools and participating in EU projects.

It's Future Classroom Lab uses new technology in an activity-based setting to: interact, present, investigate, create, exchange and develop.

The skills specifically requested by the technology industries and under-represented in today's population includes Science, Technology, Engineering and Mathematics, abbreviated as STEM.[29] As the requirements for these skills grows, there is in parallel an increased pressure on the educational system to produce adequately prepared teachers, learning material, and facilities. Given the financial and organisational difficulties already faced by educational systems in many Mediterranean countries, this only makes the situation worse.

28 http://www.itworld.com/article/2945674/careers/computer-science-students-are-in-demand-and-they-know-it.html
29 https://www.livescience.com/43296-what-is-stem-education.html

The STEM educational approach does apply an interdisciplinary method, but a more comprehensive approach to addressing the skills issue, complementary to and often in collaboration with the traditional education system, is to use the citizen-driven Living Lab concept to leverage three opportunities:

- The first, intrinsic to the problem itself, is that the information and communication technologies that create the skills shortage can themselves offer the opportunity to learn. On-line learning and training offers new opportunities even for those living in the most remote areas, especially with the publication of high-level university courses for free on-line access, e.g.through MOOCs, Massive Open Online Courses.[30]
- The second, related, aspect is that skills such as programming and simulation are open-ended activities that promote exploration and experimentation. This means that new technologies can be employed to help "learn to learn", an approach that is particularly adapted to STEM requirements even at a young age.
- Finally, while engineering and mathematics are highly formalised forms of knowledge, interaction with new technologies involves a logically structured mindframe that can also be acquired through deduction and intuitive interaction. This is how new generations of "digital natives" seem to so effortlessly master a new technology. Youth is thus a potential societal resource for upskilling of older generations.

LaborLab in Barcelona

Citilab in Cornellà is an open citizen laboratory that focuses generally on offering citizens the possibility to learn and work with new technologies.
LaborLab as a specific initiative that helps people find and create the conditions for employment, including teleworking or "inventing a job". Activities include training for new professions, the "ProjectLab" to invent new jobs, and "LabWorking" as a shared working environment.
www.citilab.eu

Just as skills acquisition related to new technologies can mix both formal and informal approaches, employment opportunities based on digital skills can be directed towards both formal and informal means of occupation. A degree in electronic engineering can increase the chances of finding a job in a multinational technology company, while at the same time a basic mastery of the internet and productivity tools can provide the basis for less structured opportunities, for instance through teleworking. These opportunities provide the visible channel through which to find new forms of employment and thus a driving motivation to master the related basic skills.

30 https://www.mooc-list.com/

Social Innovation

Smart City Casablanca

The "Frugal Social Sustainable Collaborative Smart City Casablanca" initiative offers a new approach to address climate change and promote green, inclusive economic growth.
At the core of the project is an Open Data Living Lab Platform that integrates green economy, social innovation, and citizen engagement.
This urban initiative is complemented with a similar initiative in the rural area. The e-Douar, the smart village[31].
http://www.e-madina.org/

Social innovation refers to innovations that are social in their objective – meeting specific social needs – as well as in their method – engaging with the community with the broader aim of strengthening civil society.[32] As such, social innovations are inherently citizen-driven; differently from the structural initiatives and global networks above, they are very deeply grounded in and characterized by a specific local need. The aspect that can be transferred and networked at the broader scale is the methodology, which means that social innovation initiatives can be spontaneously generated bottom-up but are equally likely to be driven by an NGO or international development organisation following a specific approach, which in turn can have various degrees of focus on the opportunities offered by new technologies. Social innovation is thus highly relevant to those territories in the Mediterranean area that are suffering most from social problems, including issues derived from individual and gender roles, family and community structures, and institutional inadequacies and inefficiencies.

Social innovation initiatives can often be driven by a public administration – more likely than not local– looking to engage better with its citizens to meet pressing demands. In this case, the local administration reaches out to citizens in processes of participatory governance, service co-design, and similar methods, with the double objective of creating more effective policies and services together with improving the bond between citizens and government. These institutionally led methods for social innovation can have a very broad relevance for Mediterranean territories, as the public sector struggles on the one hand to deliver services with less resources and greater needs (due to population growth, unemployment, effects of climate change, etc.), while defending itself from the challenges of radical extremism and similar phenomena resulting from citizen estrangement on the other.

31 http://www.rse-et-ped.info/wp-content/uploads/2015/11/e-douar-20-Nov-2015-simplifi%C3%A9-CP21.pdf
32 http://ec.europa.eu/growth/industry/innovation/policy/social_en

More community-oriented approaches to social innovation can be found in situations suffering the impacts of economic and structural transformations, and can address different scales ranging from an isolated village to an entire region. Here the emphasis is on reinforcing community identity and local livelihoods, through a new balance between traditional knowledge and practices and the opportunities offered by new technologies for a more viable livelihood.

DigiArt Living Lab

The DigiArt Living Lab in Tunisia addresses issues of employment, growth, and youth by leveraging the Creative Industries and ICT.
The programme follows the development of school children in a sequence of: storytelling, gamification, design thinking, and mixed reality.
http://www.3dnetinfo.com/

A final but related type of social innovation is driven by a need for empowerment of specific social roles, generally in reference to minority groups or more broadly to the role of women in society. Here all the methods and approaches described above can be adopted, while special attention is taken to ensure direct (and not intermediated) engagement in co-design processes as well as in the determination of criteria for success. Innovation in social roles can be a specific objective or a part of an initiative for institutional innovation or community empowerment.

As stated at the outset, social innovation is essential to ensure that the innovation infrastructures and skills-building initiatives are really relevant to the needs and opportunities of Mediterranean territories. On the other hand, the issue most often faced by social innovation initiatives is their ability to grow into more large-scale phenomena with a broader impact. For this to happen, all three types of initiatives need to work together to reinforce each other, guaranteeing the global connections, the infrastructure, the skills base and the social relevance of new forms of innovation.

Policy Frameworks

In the previous section, we have seen how citizen-driven innovation is emerging in different ways across the Mediterranean, harnessing the opportunities of digital technologies to bring economic prosperity and a better quality of life. As these processes unfold, it is natural that the public sector – one of the actors in play but above all as "holders" of key resources – search for ways to promote and reinforce citizen-driven social innovation as a part of its policy action. As we have seen, innovation policy is becoming one of the main pillars of public policy in general, meaning that innovation is considered to be in the public interest: a good thing.

Two points of caution are in order here. First, innovation, and even more so technology-driven innovation, is not *by definition* a good thing. There are many paths that innovation can take – over-production and environmental impact, acceleration of inequality and social divides, threats to privacy and human rights – that are contrary to the goals of citizens and policy-makers alike. This fact is one of the main drivers of the Living Lab approach: the deep engagement of citizens and end-users in the co-design of innovation helps to provide results that are genuinely in the public interest.

The second issue is that developing policies for the promotion of citizen-driven innovation, or any bottom-up process for that matter, is far more complex than it appears. All the stakeholders in an innovation process come from a history of relations with the public administration: structured frames of interaction that mutually pre-define roles and expectations. It requires a strong sense of mutual trust and shared purpose for all players to shift their stance from confrontational negotiation to open, peer-based collaboration. In addition, social innovation often emerges from un-structured groups and fragile networks that are difficult for the public sector to deal with.

Notwithstanding these difficulties, the public sector has little choice but try and play an active role in accompanying and promoting innovation, and in particular technology-driven innovation, within its sphere of influence. Failure to do so adequately risks leaving one's peoples and territories subject to the more negative impacts of globalisation that result from the lack of a pro-active role in the dynamics of on-going change. It is therefore of interest to look at what directions are being taken and how this unfolds for different kinds of players in the policy arena.

Local and Regional Policies: The quadruple Helix Model Gains Ground

Local and regional policies are playing an increasingly important role in promoting citizen-driven innovation, mainly because this is the level of policy making that is "closest to the

ground" and more attuned to the concrete needs and expectations of citizens and businesses. Initiatives driven by the public sector normally include spatial planning, transport, business development and other areas, as well as the co-design and experimentation of new public services.

Examples of good practice in this area need to be assessed with care, as the political and structural framework for local policy-making varies significantly in different Mediterranean countries. Those belonging to the European Union have common structures for local and regional governance, as well as common policy frameworks for key issues ranging from environmental protection to transportation.[33] On the other hand, it is also true that different EU countries come from different political histories with different degrees of centralised governance, so that regional policy in, say, France can be quite different from that of Malta. The non-EU Mediterranean countries have further and stronger differences in governance models, generally more centralised, some with a monarchic structure and some influenced by the Islamic governance model.

Smart Specialisation

So-called "Smart Specialisation" is a specifically EU policy model imposing a conditionality on regional innovation strategies in order to gain access to Structural Funds for the 2014-2020 period. The following characteristics of the approach can also be applied to innovation policy processes elsewhere:

- Policy as a process: with the emphasis on engagement and collective policy making rather than set thematic objectives
- "Entrepreneurial discovery": looking with a fresh eye to make contact with unknown local innovators
- Defining strategies based on local strengths and assets within an "outward-looking" perspective

The Smart Specialization Platform of the EU Joint Research Centre is in charge of monitoring of the S3 policies in the European regions.
http://s3platform.jrc.ec.europa.eu/

Nonetheless, an important and relevant shift is happening in EU regional policy for the period 2014-2020, with the Structural Funds (money traditionally funding infrastructural investment in the poorer regions of Europe) gaining a new direction. For the first time, eligible regions need to elaborate regional innovation strategies, using participatory processes and adopting the quadruple helix governance model of innovation,[34] for their funding to be approved.

33 https://ec.europa.eu/info/strategy_en

34 http://cor.europa.eu/en/documentation/studies/Documents/quadruple-helix.pdf

The main issue that emerges in local and regional initiatives is thus only in part the visible differences in governance models. The key fact is that in order to promote citizen-driven innovation, the public sector itself must necessarily engage in a parallel process of *institutional innovation.* Both the organisational re-structuring brought on by the introduction of new technologies and the citizen-driven impulse to leverage the new flexibility of these technologies to thoroughly re-design public services, means that the institution in question – a municipality, a police department, a regional authority, etc. – will no longer be the same. It will likely be more efficient and more effective, but the broader the scope of the innovation, the broader the impact on every office and public servant.

The Decidim Platform in Barcelona

The "Decidim la Barcelona que volem" platform engages citizens in a transversal, bottom-up approach to participate directly in specific projects such as the management of a theatre, the design of a city square, etc.
The Portal has 40,000 citizens registered and 10,000 proposals coming from 4,000 people, including ideas for the city's Action Plan.
https://www.decidim.barcelona/

Historically, public administrations have been designed to administer an un-changing (or slowly changing) system of social and economic activities. As technology innovation brings systemic change at an unprecedented pace, the public sector is no longer capable of 'controlling' the phenomena it manages with even the most sophisticated means of administration. Indeed, its role in society is rapidly shifting from one of *producing* services to one of *orchestration* of the different actors engaged in both service delivery and service consumption.[35]

In this context, participatory forms of governance are often seen as a way to overcome the distance between local authorities and the concrete needs of stakeholders, as well as an opportunity to bring new ideas and energies to addressing them. New technologies are contributing strongly to this trend, offering new tools for harvesting collective intelligence and, more broadly, empowering end users to shape their futures.[36] Smart City infrastructures contribute by capturing detailed information on city dynamics, ranging from water and traffic flows to air quality or energy consumption, to inspire new service concepts and better inform decision makers.[37]

Citizen participation is indeed at the heart of the co-design approach, and when managed appropriately can significantly increase the effectiveness as well as the efficiency of the

35 Victor Mulas, "How to implement "open innovation" in city government", World Bank Sustainable Cities Blog, http://blogs.worldbank.org/sustainablecities/how-implement-open-innovation-city-government.
36 http://eparticipation.eu/
37 http://ec.europa.eu/eip/smartcities/index_en.htm

workings of government.On the other hand, participatory practices can also lead to deluding results when roles and processes are not clearly defined, expectations unbalanced, and reciprocal commitment and trust lacking. One of the strengths of the Living Lab approach is in providing a semi-institutional and transparent framework for citizen engagement, as a neutral arena in which all stakeholders can experiment new forms of interaction with lowered risk.

International Organisations

Several locally driven initiatives are in fact managed and/or funded by international organisations such as the World Bank or the United Nations with agencies such as the Food and Agriculture Organisation (FAO),[38] the United Nations Development Programme (UNDP)[39] or UNICEF.[40] These agencies operate some with own funding and programmes and some through a project-based multiple triangulation between donor nations, recipient nations, and local NGOs. Their area of action primarily involves the non-European nations in the Mediterranean space, although Europeans can be involved either as donor nations or as the seats of the operational NGOs.

Social Innovation Labs

The first of the UNDP's Social Innovation Labs in Egypt has a specific focus on capacity building for local women entrepreneurs.

Specific projects address a range of issues including improving the livelihood of rural fishing communities, encouraging men and women to report violence, and design for inclusive living.
http://www.eg.undp.org/content/egypt/en/home/ourwork/development-impact/in_depth.html

These agencies are generally born under a logic of development economics based on 'foreign aid' for large-scale infrastructures, but have evolved over the past decades to develop more articulated and bottom-up approaches. Indeed, innovation itself, in both its technological and social components, is seen as an important tool for local development in both urban and rural settings. Even the simplest of technologies, such as the SMS, can be applied to simple services that can have a significant impact on poor populations.[41]

38 http://www.fao.org/home/en/
39 http://www.undp.org/content/undp/en/home.html
40 https://www.unicef.org/
41 For an example: http://imaginationforpeople.org/en/project/frontline-sms/

The improved access to technology through the spread of smartphone adoption combined with the creativity of young populations is leading to a new level of empowerment that can have a profound impact the way development policies are conceived and carried out. In this context, international agencies can build on their neutral stance to help local stakeholders better manage citizen-driven innovation processes. Benefitting also from their ability to access high-level consultancies and triangulate with locally grounded NGOs, they are often capable of producing state of the art results.

WORLD BANK – EnoLL MOU

The World Bank and the European Network of Living Labs drew up a Memorandum of Understanding in 2012 as an example of collaboration defining innovation models applicable in both European and developing contexts.

The publication "Citizen-driven innovation: a guide for city mayors and administrators" provides practical examples of transferability in a range of settings, with many EuroMed examples now being applied in Tunisia, Egypt and Lebanon. https://openknowledge.worldbank.org/handle/10986/21984

The main issue faced here is the often sporadic, project-based nature of these initiatives and the relatively low level of visibility they gain in the innovation community. Here again, the Living Lab model can provide a path towards transforming successful initiatives into a more sustainable and lasting innovation partnership that can in turn generate new co-design processes that draw on other types of resources. This would require addressing delicate issues of ownership and trust building, involving the engagement of all actors involved, in particular the operational NGOs, in a broad partnership at the Mediterranean level.

The European Union

The European Union is of course a strong player in the Euro-Med area, covering nearly all of the territories on the northern shore. The Med EU regions equally play a significant role in the European Union, counting for approximately 20% of its entire population.[42] In addition, the EU has a strong policy influence on the territories it covers, through instruments such as EU Directives on issues ranging from consumer rights to water management to strategic frameworks such as the Digital Agenda. The European Union has in fact been a key player in the launch and maintenance of Euro-Mediterranean cooperation, starting from the Barcelona Process in 1995.[43]

42 http://ec.europa.eu/eurostat/statistics-explained/index.php/Population_statistics_at_regional_level

43 http://ufmsecretariat.org/wp-content/uploads/2015/10/Declaraci%C3%B3n-de-Barcelona-1995.pdf

The main EU policy instrument for research and innovation is the Horizon 2020 Framework Programme. The programme architecture for the 2014-2020 period has a strong orientation towards "societal challenges", including relevant topics such as food security and sustainable agriculture, clean and efficient energy, and climate action, as well as broader action towards "inclusive, innovative and reflective societies".[44] There are also increasing provisions for the participation of non-EU countries; organisations in "Associated Countries", including several Balkan countries and Turkey, Israel, and Tunisia, can participate on the same terms as those in EU member states. There are also opportunities available for all other countries in the Euro-Mediterranean area to participate directly in collaborative research projects, though with more limited funding.[45]

The Catalonian Region's Smart Specialisation Strategy

The Catalonian Region's Smart Specialisation strategy has two main priorities, industrial modernisation and quality of life of citizens, with social innovation playing an important role.

One of the main policy instruments based on the quadruple helix is the CatLabs programme, which aims to build a regional network of innovation labs, addressing issues such as: social added value, ways to collaborate between the regional and local administrations, and monitoring the contribution to inclusion and quality of life. http://catlabs.cat

Of the policies that can have a specific impact across the EuroMediterranean space, the EU's regional policy – managed by the European Regional Development Fund (ERDF) – is one of the more influential. Until the expansion to the east, the Mediterranean EU regions gained the lion's share of ERDF funding, and many regions continue to qualify for "Convergence" status. The recent Smart Specialisation approach applied specifically to innovation policies within ERDF spending for the 2014-2020 programming period, has had the further impact of opening up policy making to inclusive and participatory approaches including social innovation.[46]

By encouraging regions in the Mediterranean area to adopt innovation policies that are more suited to their own needs and possibilities, the EU has in effect led them to define innovation strategies that are also coherent with the needs and possibilities of regions across the Mediterranean space. The previous sections in fact demonstrate that the more innovation initiatives build on local needs and opportunities while relying on local culture and creativity as an asset, the more they can find common ground and share methods and insights.

44 https://ec.europa.eu/programmes/horizon2020/en/h2020-section/societal-challenges

45 http://ec.europa.eu/research/iscp/index.cfm?pg=participate

46 http://s3platform.jrc.ec.europa.eu/

These methodological commonalities emerge more directly in specific programmes within the ERDF funding dedicated to inter-regional and trans-national cooperation; of particular relevance here is the INTERREG-MED programme covering the EU regions in the area.[47] This programme funds collaborative initiatives involving organisations from at least 3 regions in at least 3 MED EU Member States (as well as IPA regions), with the purpose of developing and testing methodologies and approaches that can then be capitalised at the regional policy level.

Example: The MED Talia Project

Among the so-called 'horizontal' projects funded under the INTERREG-MED programme, TALIA – Territorial Appropriation of Leading-edge Innovation Actions is working to build a common Mediterranean Model of Innovation building on the results of on-going projects in the areas of Cultural and Creative Industries and Social Innovation.

The TALIA project's mapping of innovation clusters and communities will be extending to initiatives on both sides of the Mediterranean and linking them to international innovation networks such as ENoLL, Impact Hubs, FabLabs, etc.
https://www.facebook.com/SocialCreativeMED/

By addressing problems, needs, and opportunities specific to the MED area, the programme naturally involves initiatives that could have an even broader impact if it were not for the limitation of EU membership, but they can nonetheless extend their through alignment with other funding opportunities. The thematic objectives most in line with the issues addressed in this document fall under the Innovation Axis including, Blue Economy, Green Economy, Cultural and Creative Industries, and Social Innovation.

Finally, the EU-funded programme most relevant to the Mediterranean territory as a whole is the European Neighbourhood Instrument's Cross-Border Cooperation Med Programme (CBC MED), with over €209 million for the 2014-2020 programming period.[48] All of the objectives for 'people to people cooperation' are relevant, with a specific focus on the objectives for "Business and SMEs development" and "Support to education, research, technological development and innovation". ENI CBC MED thus offers the opportunity to connect the range of policies and programmes that are currently operational on each side of the Mediterranean to work towards a common goal.

47 https://interreg-med.eu/

48 http://www.enpicbcmed.eu/enicbcmed-2014-2020

Towards the Mediterranean Living Lab

In the previous two sections, we have identified the vision of the Mediterranean as a living lab region. Then we have analysed emerging expressions of such a movement. Now we want to imagine what a mature Mediterranean Living Lab might look like, as a means of guiding the convergence of all the actors involved and seeing what kind of innovation model can support it.

Towards A Mediterranean Model of Innovation

Let us have a closer look at the examples from the previous sections and their commonalities in terms of the kind of innovation and its relevance to the Mediterranean area's needs and potentials. The main defining feature is perhaps an emphasis on the collective and social dimensions rather than a pure technology driven form of innovation, of the kind more fit for industrial development. As needs are of a predominantly social nature, informal and barter transactions parallel formal market exchanges, while industrial and financial capital is mainly external (or extraneous) to local territorial dynamics. Innovation responds by mobilising communities, adopting frugal approaches, and creating new social and organisational arrangements.

In pervading models of innovation – e.g. Silicon Valley – technologies and markets are the defining frameworks within which innovation happens.[49] In the Mediterranean space, both markets and technologies are open to question as they are explored, re-negotiating rules which have been designed to benefit others and shifting the emphasis to a rediscovery of shared values. Territorial and social well-being more than profit is the ultimate goal, since the alternative for most Mediterranean citizens is to emigrate elsewhere in the search for opportunities. As innovation is carried out by those who choose to stay (or have no choice), there is a strong collective goal to make home a better place.

Territorial Capital

There are different frameworks for defining Territorial Capital, but a useful classification for the purposes of this paper includes:

- Natural: natural resources including climate and geography
- Physical: built up environment and infrastructures
- Symbolic: identity and cultural specificity and attractiveness
- Human: education, creativity, level of social cohesion
- Spatial: location and territorial development patterns

49 See for example Annika Steiber, Sverker Alänge, The Silicon Valley Model: Management for Entrepreneurship, Springer, 2016.

Innovation in the Mediterranean area can count less than others on research infrastructures, state-of-the-art technologies, and pervasive financial capital to feed startups, and thus has to be more creative with available resources. In that process, the potential of often overlooked resources emerges with greater strength, following a path of Territorial Innovation. This can be defined as innovation that creatively builds on Territorial Capital, a term derived from regional development theory.[50] Territorial Capital – natural, built, and human resources and other elements that are specific to a given territory – are here seen as potential resources that can be leveraged to increase their yield towards economic and social benefits. For instance, natural and cultural resources are the foundation for the tourism industry, and interventions to increase their maintenance and accessibility can increase the yield that tourism brings.

The same mechanisms can be seen to apply to innovation. Technology can play an important role in increasing the yield of territorial capital, and equally territorial capital can define the potential for innovative technology development: all other things equal, it makes sense to develop applications and services for, say, tourism or environmental monitoring in areas where tourism is prevalent or the environment needs monitoring. In the same way, social innovation can draw inspiration from traditional practices and relationships, especially when frugal or social technologies give new life to ancient ways.

For territorial innovation therefore, the richer the territorial capital, the stronger the social and collective ties. And the greater the creativity in applying and adapting technology, the greater the innovation potential that results. This is not to say that the Mediterranean can ignore global networks, advanced technologies, and financial capital, but rather to propose that the core added value for the kind of innovation required to address the problems faced do not depend on these factors as a prerequisite.

The CreativeMED Model

The Mediterranean Model of Innovation developed in the EU's ETC MED project "CreativeMED" consists of three elements driven by Collective Creativity:

- Community scale partnerships
- Territorial Innovation
- Trans-local socioeconomic ecosystems

50 Roberto Camagni, Roberta Capello, "Regional Competitiveness and Territorial Capital: A Conceptual Approach and Empirical Evidence from the European Union", Regional Studies, Vol 47 Issue 9, 2013, pp. 1383-1402.

Such a statement goes against the kind of mainstream innovation policy thinking – "you need broadband and research infrastructures before you even can start" – and instead affirms that the ingredients for innovation are all present to a far stronger degree in the Mediterranean area than in well-known global innovation hotspots. Indeed, the Mediterranean model proposes with strength a new kind of innovation, one that is capable of addressing concrete 'wicked' problems such as climate change, food security, and opportunities for youth without the need to develop centralised business and service models (ex: Uber or Airbnb).

In this context, however, participating in global innovation networks can be a strongly empowering force for the Mediterranean innovation cases such as those reviewed in previous sections. The condition for success is that participation aims to amplify the added value of territorial innovation rather than copy extraneous models. From the UNDP Social Innovation Labs to the FabLab network, the optimum balance is achieved when global networking is based on peer respect and reciprocal learning, strengthening each local innovation partnership with external recognition and appreciation of its creative abilities.

Digital Social Innovation: A New Dimension in the MED Model

In addition to territorial innovation, social innovation is increasingly recognized as a key component of current innovation systems. Innovation needs to be not only open but also inclusive: ENoLL heralds its mission as "empowering everyone to innovate", proposing a system where technology is open to everyone – every citizen – rather than the exclusive domain of a few universities, companies and governments. This implies deep socio-economic changes driven by disruptive economic and social innovation.

The economist Carlota Perez (2016)[51] provides an interesting theory of cycles of technological innovation. Since the industrial revolution, each innovation cycle (steam power, steal, electrical power, oil) has historically consisted of two phases. In the first, a pioneering group of scientists, politicians or entrepreneurs putting in place the new infrastructure. This is followed by a socio-economic crisis in which the majority of the population still bound to the previous cycle sees their way of living in danger. The solution to this crisis requires a dramatic change in mindsets and socio-economic structures, in order for the majority of the population to share the benefits of the new technologies. This sparks off the second phase of deep social innovation. Our current cycle is of course that of digital innovation driven by information and communication

51 Perez, Carlota, 2016. Capitalism, Technology and the Green Golden Global Age. http://www.carlotaperez.org/downloads/media/PEREZ%20launch%20of%20MJ-MM%20book%20Rethinking%20Ksm%20final.pdf

technologies. The 2008 financial crisis marked a pivotal moment, followed by phenomena such as Brexit or Trump that indicate that even in the most digital countries, technologies cannot solve the contradictions they have created without a strong shift to social innovation.

Digital Social Innovation

The European Commission is beginning to incorporate social innovation in its Horizon 2020 research programme. The "Digital Social Innovation" project defines the term as "a type of social and collaborative innovation in which innovators, users and communities co-create knowledge and solutions for a wide range of social needs and at a scale that was unimaginable before the rise of ICT and the Internet".

The project has identified 1938 organisations and 1422 projects working on DSI across Europe, with DSI programmes also in cities such as Barcelona.
https://digitalsocial.eu/

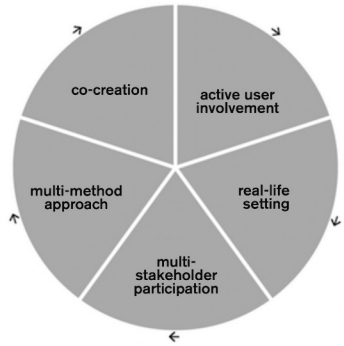
This analysis opens important prospects for the Mediterranean area, which, as this paper demonstrates, possesses a strong potential for social innovation independently of available technical infrastructures. If an era of social innovation is ahead of us, Med countries can align their innovation strategies to this direction, developing programs and projects that focus on its societal challenges, using digital technologies as a tool for addressing them. In short, rather than focusing on the Net, we need to build the Lab. The Mediterranean as an Open Living Lab can then be built as an experimental and complex system of communities focusing in generating knowledge for a wide range of societal needs using advanced ICT tools.

Social innovation has a long history in the Euro Mediterranean area's recent past. After two World Wars, European leaders had to accept that a social services like health and education should become universal systems, systems open to everyone. Now we are not in the industrial but the knowledge era, and again we need to define new kinds of social services for everyone. Can innovation be the new universal service? Are living labs, social labs, and fablabs, the seeds of this new universal service? Maybe the Mediterranean can finally develop a system of innovation that is open to everyone. The land that created the first universal religions and the first scientific theory of the universe, could also become the land where the first universal innovation systems, the system that "empowers everyone to innovate" could emerge.

Innovation as a Framework for Dialogue

As mentioned above, this double dynamic of reciprocally reinforcing dimensions – local partnerships and global networks – works best when it is based on mutual understanding and learning. This in turn can create a framework for dialogue between different cultures and peoples. Common problems are recognized and local communities empowered to set their own priorities. Different approaches to finding innovative solutions can be adopted, but they generally share common methods and tools.

Living Lab Methods



The common co-design method across all Living Labs involves a series of iterative processes:

- Active user involvement
- Real life setting
- Multi-stakeholder participation
- Multi-method approach
- Co-creation

The Living Lab model has shown, over more than 10 years of development, to be able to play such an enabling role. As an open framework, it allows for a very broad range of types of structures, areas of intervention, and methods of engagement. The defining elements allow different labs to set a common goal and share key principles.

In this way, Living Labs address concrete issues of real concern to citizens, businesses and local communities, including:

- Health and wellbeing, ranging from healthcare in remote and rural areas to Assisted Living for the elderly.
- Smart cities and regions: using a citizen driven approach to improve quality of life and transform cities and regions into real-life testing grounds for new services.
- Culture and creativity: building on collective creativity and valorising immaterial heritage and traditional practices to co-design new products and services, new markets, and new educational methods.
- Energy: addressing the need for both renewable sources and energy efficiency

through behaviour change, climate adaptation, and innovatively holistic approaches.
- Mobility: building a bottom-up dialogue for sustainable mobility approaches and integrating citizens into innovation processes.
- Social inclusion: concrete actions for youth work, intercultural respect, poverty and margination, etc. based on collective action and citizen-driven innovation.

Open Governance

Open governance is an essential characteristic of open innovation in general and for promoting collaboration and dialogue in a way that remains open to new ideas, open to external stakeholders, and open to learn. In the range of individual models discussed so far – Living Labs, FabLabs, Impact Hubs, Maker Spaces, etc. – open governance is at the same time a guiding principle and an area for experimenting new ideas and learning new approaches. Reciprocal respect, trust, and a drive to innovate, fail, and learn are common features, but it is equally important to recognize the fact that attaining a fair, efficient, and open governance model is work in progress and will be for some time to come.

A good example of how the Living Lab approach can constitute a framework for dialogue is the "Francophonie Living Labs" network, which adopts an open governance approach for the annual networking workshops it has held since 2015. Living Labs in France, Canada/Quebec, Switzerland, Belgium, and Tunisia come together, and the commonalities of the Living Lab method and the French language (allowing to better engage with local communities) provide a framework for understanding across the very different cultures and settings. These regular encounters allow for both Living Lab managers and local stakeholders to share experiences and compare results of on-going innovation initiatives. The open approach allows participants to share ideas regarding both the "what" and the "how", shifting the emphasis from "talking" to "doing".

This kind of open networking format can also provide an opportunity for policy makers at different levels to come together and share experiences. A municipal or regional government, an EU funding programme, or an international agency tend to view the initiatives they promote from within a relatively closed environment of priorities and procedures. Coming together under a common umbrella, such as the Living Lab community, highlights shared aspects of goals and methods and opens up new possibilities for multi-level collaboration. In this sense, policy makers themselves gain the benefit of improving policy coherence – the coordination of actions across funding programmes – through the bottom-up mechanisms of citizen-driven innovation.

The Way Forward

This paper has aimed to demonstrate that the potential for development of a Mediterranean network of Living Labs is there – bringing together different models, policy levels, and approaches – and the benefits to both Mediterranean territories and participating initiatives are clear. Promoting such a process requires that those involved join forces to carry forward three main areas of action, which in turn can provide answers to the three questions posed at the outset.

1. We need to call on policy makers to support the Mediterranean network of Living Labs.

The first question concerns the potential role of Living Labs for the Mediterranean area. This paper argues that the Living Lab model is highly relevant because it is driven by concrete action, and the Mediterranean dimension becomes evident – and its real benefits visible – when theory is translated into practice. The Mediterranean model of innovation needs to be evidence based, but the production of that evidence needs to happen through the experimentation of a pilot network of Living Labs solving local problems, sharing methods and approaches, and sparking off policy learning at all levels. This is what funding programmes such as the European Neighbourhood Instrument and the myriad of global development initiatives claim as their mission.

2. We need to address concrete issues faced within the Mediterranean area.

The second question asks which priorities to address. Here, technology research and development too often follow their own path, favouring market exploitation and triumphant claims of sustainability over practical relevance to the urgent and pressing issues facing local communities. Policy makers at all levels across the Mediterranean need to define a short list of specific issues they face, with the Sustainable Development Goals and the programming framework of the European Neighbourhood Instrument providing a good starting point. From there however, a focused set of objectives needs be identified for experimentation using citizen-driven innovation, building cooperation on the different ways it can be applied and the different solutions that can emerge. In this way, the Mediterranean Living Lab can be born as a practice-based network of concrete relevance to Mediterranean citizens.

3. We need to build confidence in the Mediterranean model of Innovation.

The final question asks if a specifically Mediterranean dimension is possible. As an open innovation model, the Open Living Lab approach is capable of bringing together the emergent energies appearing across the Mediterranean and give strength and

visibility to the specific approach to solve problems that are present not only in Mediterranean territories but often across the world. Policy makers and authorities need to overcome the copycat syndrome and empower Mediterranean innovation communities to stand up for their own approach and creative potential. A regular series of innovation weeks bringing together initiatives and examples of good practice across the Mediterranean, hosted on a rotating basis in different cities, could for example stimulate media awareness across the globe while demonstrating to Mediterranean peoples that they can contribute directly to designing the solutions to the problems they face.

IEMed.

The European Institute of the Mediterranean (IEMed), founded in 1989, is a consortium comprising the Government of Catalonia, the Spanish Ministry of Foreign Affairs and Cooperation and Barcelona City Council. It incorporates civil society through its Board of Trustees and its Advisory Council formed by Mediterranean universities, companies, organisations and personalities of renowned prestige.

In accordance with the principles of the Euro-Mediterranean Partnership's Barcelona Process, and today with the objectives of the Union for the Mediterranean the aim of the IEMed is to foster actions and projects which contribute to mutual understanding, exchange and cooperation between the different Mediterranean countries, societies and cultures as well as to promote the progressive construction of a space of peace and stability, shared prosperity and dialogue between cultures and civilisations in the Mediterranean.

Adopting a clear role as a think tank specialised in Mediterranean relations based on a multidisciplinary and networking approach, the IEMed encourages analysis, understanding and cooperation through the organisation of seminars, research projects, debates, conferences and publications, in addition to a broad cultural programme.