



NEXUS DRIVEN OPEN LIVING LABS JOINT ACTION PLAN

SUMMARY OF RECOMMENDATIONS

**B_A_2.1_0124. NEXUS-DRIVEN OPEN LABS FOR COMPETITIVE AND INCLUSIVE
GROWTH IN THE MEDITERRANEAN. (NEX-LABS)**



ACTIONS, RECOMMENDATIONS AND EXPECTED IMPACTS

After setting the priorities, specific and targeted recommendations were found imperative to outline the action plan that would ultimately generate an informed strategy, supporting the implementation of LLs and ensuring the success of the intended WEF nexus approach. As such, consecutive sessions with partners were organized that were diverse and ranged between virtual meetings and in person workshops that resembled the intended LLs. The MURAL, an interactive online platform, was used to host partners of these projects and experts in the field, engaging in discussions and fulfilling tasks required for the development of the NJAP. The MURAL incorporated a series of steps to be followed during various sessions. The tool built upon the recommendations from WP3, implementing measures to assess and prioritize the necessary actions. As such, over several meetings and focus group discussions, partners were able to assign several targeted actions for the pre-assigned recommendations, identify the timeline and impacts of the actions, assigned scores, and ranked the priorities, by that validating the determined priorities.

The objectives of these discussions were to encourage participants to reflect their expertise, open the space for sharing findings and knowledge, and limit any bias or misleading information during the synthesis of the action plan. Sessions started by developing sets of recommendations for each identified priority, and then listing specific actions that were critical to formulate the holistic framework of the action plan. In this context, an overview of the potential impacts at the short, medium, and long-term, that may be driven from a successful implementation phase of the listed actions, was delineated. The impact of actions was defined as the period required to initiate the envisioned outcome of this action. The following includes a culmination of the outputs that resulted from the NTFGs focus groups and PIPA sessions. This section entails the specific recommendations of each priority, the actions required to direct and accelerate implementation processes, impact term and outcomes, and corresponding KPIs.

Political diversity and a frail regional integration movement matching complexity of legislation and regulations	-P1	POLITICAL	P1+	Developing coherent national-regional policies for sustainable strategies for resources management
Lack of common policy/regulatory umbrella	-P2		P2+	Development of hybrid governance systems vs centralized or decentralized
Unsystematic evaluation and monitoring systems of S&T policies	-P3		P3+	INNO-EDU programs to sustain long-term success in innovation
Rigidity and bureaucracy of administrative mechanisms and processes together with significant overlaps in responsibilities	-P4		P4+	Management strategy policies coherent with the emerging need
Lack of an integrated approach and coordination structures at national	-P5		P5+	Extension of EU regulatory frameworks to refine and reinforce national policy stakeholders' approach
Political instability and regional conflicts	-P6		P6+	Research policy and strategic plans to consolidate innovation as the major driver for competitiveness and growth
Vague framework of institutional regulations prevents researchers' engagement and flexibility	-P7		P7+	Engaged actions dedicated to training, coaching and mentoring programs to strengthen business and managerial knowledge
Lack of financial resources/funding for R&I in the long term. Low involvement of private sector	-E1	ECONOMIC	E1+	New technologies and new markets to improve the application of new circular economy models
Limited access to finance that constrains availability of resources	-E2		E2+	Adequate funding to stimulate the industry academia cooperation and availability of trained personnel
Nature and weaknesses of socio-economic environment	-E3		E3+	Growing demand for loan availability to interest investors and lenders
Innovation and exploitation consulting costs are still perceived as barrier	E-4		E4+	Socio economic circumstances in the long term
Slow improvement towards innovation because of cost recovery or financial support	-E5		E5+	Strengthened regulatory framework must be promoted and enforced by national legislation
Inefficient use of resources and difficulties for new efficient technologies to enter the market	-E6		E6+	The role of social and solidarity economy to complement governmental incentives
Insufficient overall funding hindered by fragmentation and duplications	-E7		E7+	SMEs ecosystem to sustain aggregation forms
Lack of mechanism of financial support at local level	-E8			
Rigidities, distortions, mentality and different motivators for private sector and academia build barriers for knowledge sharing among stakeholders	-S1	SOCIAL	S1+	To decrease the lack of knowledge acquisition and reinforce the absorption and use of knowledge to surpass the limit of human development
Social awareness of the sustainable development pillars	-S2		S2+	Networking and exchanges of resources between R&D scientists across organizations
Social environmental factors, like culture, living index, crime level degrade the opportunities for collaboration	-S3		S3+	MPC Diaspora could establish effective long-term cooperation
Unavailability of qualified workforce with expertise due to inappropriate institutional management skills and lack of knowledge about open innovation, knowledge sharing	-S4		S4+	"Climate Change" is a cooperation and an ideal framework to promote intersectoral, regional and international cooperation
Consultation processes for the development of national and regional research and innovation strategies do not include civil society	-S5		S5+	Young age population structure provides the human capital for future growth and be a major driver for development.
Differences in visions, culture ethnic, political, and cultural limit collaboration	-S6		S6+	Increasing number of research actors to sustain the R&D
Actual critical mass limits research capacity	-S7		S7+	Unique ecosystem to valorize unique natural resources and take advantage of its untapped potential,
Lack of "focal points of contact", common vision and targets	-S8			
Mismatch between the technological output of the scientific/academic sector and the technological need of the productive sector	-T1	TECHNOLOGICAL	T1+	Need of cross-checking procedures for innovative technologies during the test on different scenarios
Lack of platforms/information system to link university-enterprise activities to formulate, plan, assess and transfer policies to the productive sector	-T2		T2+	High demand for improved availability of data, new efficient technology and innovation/improvements in infrastructure can facilitate interregional knowledge sharing
Lack of market vision and legislative lack of financial support and government support do not allow innovative developments to be properly implemented	-T3		T3+	Need for cluster cooperation/agreements/partnerships with foreign institutions for successful implementation of innovative technologies
Lack of IPR/trademarks knowledge and legal frameworks for technical / administrative mechanisms to help the owner ensuring IPR	-T4		T4+	Developing sustainable innovative technologies and concepts in resources saving/use efficiency/productivity and conservation
Insufficient innovative infrastructures/lack of equipment and maintenance	-T5		T5+	The role of incubators, development agencies, Technology to support the innovation development in the region
Restrictions remaining at the institutional framework, affecting the flow of human resources	-T6		T6+	To build an innovative framework environment in which technology transfer offices may transform ideas / concept into concrete innovations
Limited technological absorption capacity of industry due to disconnect between academia and business	-T7		T7+	Harmonization and integration efforts pave the way for collaborative implementation (e.g., -regional living labs concept)
Local level projects are scattered, and fragmented hampering the overall coordination and detection of complementarities	-T8		T8+	Incubators, development agencies and innovation support services as institutions to preserve the unique ecosystem
Technical perception of risk / value for technologies is different in MPC	-T9			
Legal harmonization for the short/mid-term hinders innovative products' penetration	-T10			

Public Private Partnerships



- The existing PPPs platforms, technology alliances, and engagement between different key actors.
- Mismatch between governmental strategies and private sector expectations for commercialization.
- Lack of capitalization of existing regional PPPs.
- Fragility of existing mechanisms to link industry and academia, and insufficient coordination measures between investment and economic agencies with science and technology agencies.
- The availability of programs that leverage resources and support the engagement of SMEs in R&D activities in cooperation with academia.
- Promotion of new products or infrastructure that tackle the WEF challenges to private energy investors.

Clusters



- Possibilities for the valorization of regional innovation and existing clusters.
- The insufficient diligence to create synergies/ partnerships / industrial platforms and/ or Clusters in manufacturing and product distribution chains.
- The present regional collaboration efforts, opportunities, expertise exchange, regional programs, and clustering around the nexus topic.
- The potential of developing national technology platforms and innovative business clusters.
- The lack of consolidated interactions and connections between existing WEF networks and communities.
- The existence of highly skilled networks within WEF NEXUS domain.

Intellectual Property Rights



- Availability of facilitations and application of intellectual property rights.
- Low degree of quality certification and unsatisfactory registration of patents and other forms of intellectual property protection for industrial design and further exploitation through licensing and production of new technology.
- The use of IPR policies in universities and research centers.

Technology transfer



- Agility of business type to market needs, and the transfer of research results into economic value chains.
- Adoption of innovative technologies to facilitate development of different sectors, particularly in rural areas that lack basic technological advancements.
- Obstacles impeding mitigation measures and technology transfer pace of progress that include, pandemics (COVID-19), and extreme weather conditions, especially in the agricultural sector and rural areas that are highly vulnerable to and affected by climate change.
- Lack of interest, commitment and incentives among farmers and local communities to adopt new technologies.
- Comprehensive capacity of farmers about sustainability issues of natural resources exploitation.
- New investment opportunities in renewable energy, transportation, and their improved integration into agro-food sectors.
- Ability of LLs to provide feedback, implying an ameliorated incentive system and better incorporation of developed products/technologies.
- Excessive dependence on imports and adopting high production cost processes.
- The effect of national political and security stability on research, innovation performance, and fluctuation in world market prices.

Human resources



- Capitalization of skilled human resources, scientific young researchers, and experts abroad with scientific and industrial expertise.
- Legislations that allow hiring highly skilled personnel in governmental positions.
- The gap between human resources/skills and the market demand.
- Loss of expertise due to brain drainages, migration of local talents, experts, and companies.
- The availability of exchange programs, missions abroad, and SMEs.

Funding



- Methods of EU funding utilization and capitalization of existing schemes tailored for NEXUS domains.
- The ease of access to EU funding as approaches to address WEF challenges.
- Routine research administration and its effect on institutional competitiveness in the international funding programs.

Strategies



- Lack of benchmarking concepts, research parameters and interoperability standards, and evidence based strategic planning.
- Available landscape management measures for adaptation with growing demand and reduce pressure on natural resources. This includes inefficient management of agricultural yield utilization, lack of preventive measures for future shortcoming and population growth, lack of disaster risk management plans, and loss of biodiversity due to urbanization and extension of investments lands.
- Fragmentation of national funding of scientific research.
- Lack of coordination measures among public innovation support organizations.
- Absence of stringent standards and lack of policies stimulating and encouraging innovation and clean-tech incentives; absence of a clear and proper classification/ranking criteria for SMEs.
- The presence of a robust evaluation and monitoring framework for diverse funding schemes, which in turn results in solid economic and technological ramifications.
- Low number of effective mechanisms for empowering and engaging young scholars and SMEs owners in policy planning.
- Political support in establishing living labs, think tanks, science parks, and new science cities. This is evident by fragile policies with unclear incentives to encourage researchers and investors.

Database



- The available technological advancements and infrastructure, and equity in distribution of equipment and devices among innovators and researchers.
- Lack of multidisciplinary databases, and shared data.

P1

PPPs Platforms

RECOMMENDATIONS

- Allow an increased engagement of existing PPPs and technology alliances.
- Achieve support and coherence between existing regional PPPs.
- Strengthen current relationships through capitalization of activities

ACTIONS

- Lead PPPs platforms to train committed successors.
- Consolidate existing platforms for more focus and functionality.
- Incentivize consortia.
- Consolidate scattered PPPs initiatives and success stories
- Map PPPs and establishing visibility and outreach strategies.

OUTCOMES

- Hospitable environment for replication of PPPs platforms
- Consortia that would enhance the effectiveness of PPPs platforms, and ensure the sustainability of existing ones

ASSOCIATED KPIS

- The capacity for cross-regional mobility. Facilitate flow of academics, researchers, and scientists between countries in joint cross-regional PPP (public/private/partnerships), as mobility restriction hinders participatory and inclusive cooperation.
- Availability of effective cluster cooperation, agreements, and partnership to increase knowledge sharing with foreign institutions and OLL networks (e.g., ENOLLS)

P2

Clusters

RECOMMENDATIONS

- Enlarge the valorization of regional innovation and existing clusters,
- Develop national technology platforms, expanding business clusters, and
- Connect WEF networks.

ACTIONS

- Detect good practices and replicate developed strategies and mechanisms.
- Achieve connection, engagement and learning from pioneer clusters.
- Improve and upgrade existing practices (non-successful ones)
- Expand European Network of Living Labs (ENOLLs) antenna in southern region.
- Organize periodic workshops for MPC NDOLLs for clustering and networking.
- Assign people of expertise that are dedicated to formulating these clusters.
- Support skill development
- Participate in COST actions research network that brings researchers and innovators together to investigate topics for a specific period.
- Create supportive platforms.
- Maintain an active role from funding frameworks for clustering of projects.
- Develop specialized calls for clustering and building on existing projects.

OUTCOMES

- Strategies for clusters formulation
- Calls and funding for clustering
- Sustainability of clusters

ASSOCIATED KPIs

- Availability of effective cluster cooperation, agreements, and partnership to increase knowledge sharing with foreign institutions and OLL networks (e.g., ENOLLs).
- Conservation of resources. Sustainable innovative technologies and concepts in conservation of resources should be successfully demonstrated through the NDOLLs (saving/use and efficiency/productivity).
- Established ecosystem frameworks for innovation management. Foster the conversion of ideas into concepts, products, or services which will decrease the knowledge gap and reinforce the absorption and use of knowledge that surpasses the limit of human development.
- Deliverables and sustainable practices in the MPC context. Support Nexus-driven research which can translated into deliverables, as well as increase know-how, infrastructure, and manpower through collaboration with clustering partners.

P3

Human resources

RECOMMENDATIONS

- Favor missions abroad for scientists, academics, and SMEs to stay updated.
- Leverage young researchers and experts abroad with high scientific capabilities and industrial experience.
- Direct efforts towards limiting brain drains, and migration of local talents, experts, and companies, and meeting gaps between skills and market demand

ACTIONS

- Reintegrating specific calls for talents management, exploiting, and connecting with existing NDOLLS
- Involving master studies in clusters management
- Diffusing and spreading ENOLL trainings.
- Acquiring funding opportunities to create the seeds of a cluster of NDOLL managers, support installment, and attract diaspora.
- Capitalizing funds for research and innovation that equip researchers to achieve their maximum capacities (e.g., Marie Skłodowska-Curie Actions (MSCA) possibilities, etc.)
- Creating supportive ecosystems for the development of innovation/ policies/ gaining access to infrastructure
- Promoting collaborative programs for Research-to Business-to Research missions among cluster managers
- Opening chambers of commerce periodic missions to academia
- Ensuring data availability and accessibility to support SMEs and researchers.
- Human Resources should implement and organize various workshops to acquire and disseminate knowledge about NDOLLS.

OUTCOMES

- Strategies for clusters formulation
- Calls and funding for clustering
- Sustainability of clusters

ASSOCIATED KPIs

- Policies that incentivize individual involvement from different stakeholders. Government should enact consolidated policy changes that help increase joint initiatives between the private sector and individuals from different stakeholders to face industrial applied innovations and WEF NEXUS challenges using the NDOLLS ecosystem.
- The capacity for cross-regional mobility. Facilitate flow of academics, researchers, and scientists between countries in joint cross-regional PPP (public/private/partnerships), as mobility restriction hinders participatory and inclusive cooperation.
- Availability of effective cluster cooperation, agreements, and partnership to increase knowledge sharing with foreign institutions and OLL networks (e.g., ENOLLS).

P4

Funding

RECOMMENDATIONS

- Redirecting, diversify and capitalizing existing funding
- Utilizing EU funding for WEF challenges

ACTIONS

- Capitalizing funding to enhance the replication of NDOLs and promote further partnerships.
- Upgrading and promoting professional project managers' careers
- Boosting funds through second capitalization phase to all funded projects
- Increasing coordination and capitalization calls
- Ensuring sustainability of NDOLs after the end of projects
- Expanding capacity building processes and widening the scope of work to include initiatives, researchers, think tanks, and key actors in the field of WEF sectors.
- Establishing Experienced National Contact Points (NCPs)
- Clustering through Widening instrument
- Participating in Excellence Hubs to increase chances of collaboration and exposure.
- Develop a strong communication strategy to enhance the reputation of Living Labs and attract funds.

OUTCOMES

- Increase in funding resources.
- Multidisciplinary projects, clusters, and Hubs

ASSOCIATED KPIs

- The focus on research and innovation ecosystems targeting WEF NEXUS priorities. Optimize public resources implementation by coordinating between sectoral strategies, national research priorities, and smart specialization strategies at the government levels.
- Additional, viable, and sustainable EU and MPC funding. Allow relevant stakeholders access to applications, supported by a massive and wide promotion to capitalize the NDOLs opportunities.
- Effective dissemination of WEF Nexus projects and NDOLs results. Success stories and best practices are widely disseminated to a network of national and regional stakeholders, multipliers, media, etc.

P5

Intellectual property rights

RECOMMENDATIONS

- Augmenting the utilization of IPR in universities and research centers; and
- Supporting the availability of communication strategies and dissemination channels

ACTIONS

- Identifying the right people in each "channel" and create a list of contacts to keep updated.
- Gathering best practices from other institutions
- Raising awareness: It is essential to educate researchers and faculty members about the importance of IPR policies and their benefits. This can be achieved through workshops, training sessions, and informative materials.
- Working closely with press and journalists
- Recruiting skilled community managers in institutions
- Incentivizing researchers: Offering incentives to researchers who commercialize their innovations can encourage them to take advantage of IPR policies. This can include royalties, bonuses, or other financial rewards.
- Developing action plans aligned with policies to enlarge IPR.
- Amplifying outreach of successful case studies
- Encouraging collaboration between researchers, industries, and investors
- Organizing training workshops on IPR advantages for universities and research centers
- Facilitating the process of IPR acquisition and reducing paperwork or procedures., Through standardisation, developing and implementing standard operating procedures for the protection and commercialization of IPR.
- Developing solid policy frameworks that thrust for tested and validated IPR policies

OUTCOMES

- Policy frameworks for IPR acquisition
- Improved collaboration between researchers, industries, and investors
- Engagement of skilled personnel and community managers

ASSOCIATED KPIs

- Policies that incentivize collaboration between stakeholders and funding institutes in WEF NEXUS challenges. National legislation (e.g., development of hybrid governance systems) should direct efforts towards strengthening the regulatory framework which encourages skilled human resources and dedicated institutional strategies and achieves win-win joint ventures within stakeholders.
- Policies that incentivize individual involvement from different stakeholders. Government should enact consolidated policy changes that help increase joint initiatives between private sector and individuals to face industrial applied innovations and WEF NEXUS challenges using the NDOLs ecosystem.
- Established ecosystem frameworks for innovation management. Foster the conversion of ideas into concepts, products, or services which will decrease the knowledge gap and reinforce the absorption and use of knowledge that surpasses the limit of human development.

P6

Business & Technology transfer

RECOMMENDATIONS

- Motivating local communities to adopt and commit to new technologies.
- Investing in renewable energy and transportation, and integration within the agri-food sectors; and
- Using feedback to enhance the integration of products/technologies within WEF sectors and optimize the incentive system

ACTIONS

- Providing periodic trainings and introductory workshops on emerging technologies, like Service-Oriented Architecture technologies, sensors, drones, data analytics and AI, to researchers and local communities.
- Organizing periodic missions to explain opportunities, and guiding end users on potential vouchers to employ at NDOLLS.
- Testing technologies in NDOLLS open days and engaging in organized brokerage activities.
- Networking with farmers who have successfully adopted new technologies to provide a inspiring community.
- Providing farmers with technical assistance to overcome challenges faced when adopting new technologies through partnerships with agribusinesses, extension services, and research institutions.
- Providing demonstrations and trial opportunities to view new technologies and show the benefits of new technologies
- Providing incentives (subsidies or tax breaks) for adopting new technologies, motivating farmers to take the leap. Governments provide financial assistance (grants and loans) to help farmers purchase or upgrade existing infrastructure.
- Marketing and presenting technologies in NDOLLS or events hosting investors.
- Organizing periodic outreach networking events that include investment prizes.
- Workshops on dedicated societal challenges on HEU and other programs.
- Promoting local sourcing of food as an attempt to reduce transportation costs and emissions, while supporting local farmers.
- Capitalizing success stories of NDOLLS as catalyst tools.

OUTCOMES

- Missions and workshops to explain opportunities, and guiding end users on potential vouchers to employ at NDOLLS.
- Incorporation of innovative technologies in NDOLLS and WEF projects.

ASSOCIATED KPIs

- Yearly reports or policy briefs published regarding the implementation progress of the NEXUS Joint Action Plan. This supports the assessment of the proposed strategy and corresponding priorities, reinforces the legitimacy of all the strategic processes, and motivates the continuous participation of stakeholders.
- The focus on research and innovation ecosystems targeting WEF NEXUS priorities. Optimize public resources implementation by coordinating between sectoral strategies, national research priorities, and smart specialization strategies at the government levels.

P7

Strategies

RECOMMENDATIONS

- Increasing the effective mechanisms for empowering and engaging young scholars and SMEs owners in policy planning; and
- Enhancing political support for establishing scientific hubs.
- Foster trust among all the stakeholders of the NDOLLS.

ACTIONS

- Capitalizing relevant youth success for visibility and replication.
- Dedicating calls and funds for youth.
- Forcing a dedicated say for youth in policy setting.
- Establishing regional smart specialization strategies addressing WEF Nexus.
- Organizing competitions or rankings among NDOLLS.
- Engaging policy makers in outreach practices.
- Periodic specific LLs open days just for politics.
- Replicating and stocktaking communities and practices that were found successful.
- Encourage and capitalize on success stories.
- Implement a thorough follow-up process to gain a deep understanding of innovations generated within Living Labs.
- Ensure inclusivity by allowing all age categories (students, youth, younger generation) to benefit from the Living Lab, thereby expanding stakeholder engagement.

OUTCOMES

- Valorized youth success through improved outreach and visibility.
- Replicated success stories and a sustainable policy maker an stakeholders engagement.

ASSOCIATED KPIs

- The focus on research and innovation ecosystems targeting WEF NEXUS priorities. Optimize public resources implementation by coordinating between sectoral strategies, national research priorities, and smart specialization strategies at the government levels.
- The number of replicated NDOLLS at a regional level. The implementation of the living labs concept should solicit collaborative implementation and cross-checking of innovative technologies testing, under different scenarios.

P8

Database

RECOMMENDATIONS

- Distributing infrastructure and equipment among research centers and universities.
- Intensifying multidisciplinary databases.

ACTIONS

- Mapping and disseminating findings to limit duplications.
- Establishing central repository per region not country.
- Dedicating teams for knowledge transfer and succession.
- Gathering of private investments.
- Providing periodic funding calls for equipment upgrade according to identified strategies policies.
- Ensure the database is regularly updated and accessible to all stakeholders.
- Clearly explain the data and provide recommendations and analyses based on the information.

OUTCOMES

- Accessible multidisciplinary central databases

ASSOCIATED KPIs

- The capacity for cross-regional mobility. Facilitate flow of academics, researchers, and scientists between countries in joint cross-regional PPP (public/private/partnerships), as mobility restriction hinders participatory and inclusive cooperation.
- Availability of effective cluster cooperation, agreements, and partnership to increase knowledge sharing with foreign institutions and OLL networks (e.g., ENOLLS).



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