

CAPACITY BUILDING AND LIVING LAB

Imagine we're tackling the complex challenge of water management, especially with issues like climate change adaptation and ensuring sustainable water use. How do we get everyone on board and make sure the solutions actually work in the real world? That's where the concepts of capacity building and Living Labs come in, acting as powerful tools for change.

At its core, capacity building in this context is about strengthening the ability of different groups from individual farmers to large institutions to effectively manage water resources. It's not just about giving people information; it's about empowering them with the skills, knowledge, and tools they need to make better decisions and implement effective strategies.

Now, how do we achieve this? This is where Living Labs become incredibly valuable. Think of a Living Lab as a real-world, dynamic environment where innovation and collaboration happen hand-in-hand. Instead of developing solutions in isolation, Living Labs bring together a diverse range of stakeholders farmers, water authorities, NGOs, even tech companies to co-design and co-create solutions.

Here's why this "co-design" approach is so crucial from a scientific perspective:

- **Identifying Real Needs:** Traditional top-down approaches often miss the mark because they don't fully understand the specific challenges and requirements of the end-users. By actively involving stakeholders in workshops and continuous feedback loops, Living Labs ensure that solutions like real-time services and decision support tools (DST) are tailored to actual needs, increasing their chances of being widely adopted.
- **Fostering Ownership and Sustainability:** When people are actively involved in developing a solution, they develop a sense of ownership. This isn't just a nice-to-have; it's critical for the long-term uptake, use, and sustainability of new technologies and policies. If farmers, for instance, help design a new water management platform, they're far more likely to use it and advocate for it.
- **Bridging Divides:** The water and agricultural sectors often face interconnected challenges in isolation. Living Labs provide a platform to bridge these divides, bringing together different perspectives to find holistic solutions to complex problems like irrigation optimization or aquifer quality. It also helps prevent a "digital divide" by ensuring that all groups, including smallholders with limited resources, have a voice and can participate in capacity building and investment.
- **Integrating Science and Policy:** Digitalization of the water sector is a powerful tool for monitoring and analyzing complex systems, providing data to support a transition to sustainable growth. However, for these digital tools to be effective, they need to be simple, transparent, and easy to use, especially for water authorities and institutions. Living Labs facilitate this by ensuring that innovative digital methodologies are designed with practical implementation in mind. They also help integrate local stakeholder knowledge, which is essential for a holistic examination of the system and for assessing co-benefits and costs to other sectors, like ecosystems.

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- **Consensus Building and Policy Mainstreaming:** Through this iterative co-design process and the collaborative environment of Living Labs, a consensus can be built on actions for water savings, resource efficiency, and sustainable water use. This participatory approach also helps to mainstream water use efficiency into policy-making processes, leading to the implementation of new water management policies that are oriented towards sustainability and climate change adaptation.

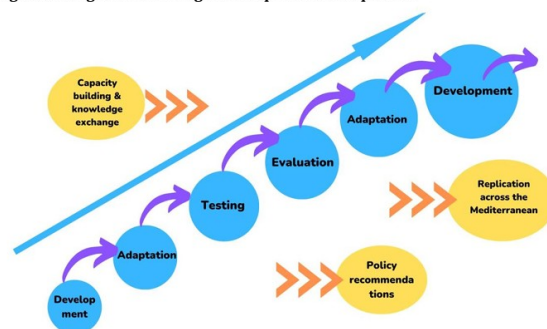
So, how does this process actually work? The implementation of Living Labs typically follows an iterative cycle:

- **Development & Adaptation:** Initial ideas or tools are developed and then adapted based on feedback.
- **Testing & Evaluation:** These adapted solutions are then tested in real-world scenarios, and their effectiveness is evaluated.
- **Further Adaptation & Development:** The feedback from testing and evaluation leads to further refinements and development, making the solutions even more robust.

Throughout this entire process, there's a strong emphasis on training activities. These trainings are specifically tailored to the end-users be it farmers, water managers, or even local ICT SMEs to ensure they not only understand the services but can also manage, maintain, and even improve the underlying platform.

Ultimately, the goal of these Living Labs and capacity building initiatives is not just to create new technologies, but to foster a system where stakeholders are not just passive recipients of information but active co-creators and implementers of solutions. This collaborative, science-based approach generates a "spill-over effect" of new knowledge and capacity, leading to more sustainable water management and even new job opportunities. It's about empowering communities to find their own solutions, leading to a more resilient and sustainable future.

Figure 1: Stages of the Living Labs implementation process



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