Figure 8. Workstations at pitching conferences: in-depth engagement opportunity.

Building on this success, the second iteration of the FIRE-RES 'Innovation Days', held in Kazanlak, Bulgaria, in April 2025, focused mainly on the forest pedagogy, while presentations also addressed integrated land management for fire resilience, innovative risk mapping, optimization of prevention activities, and the use of rapid aerial technologies. In total, 121 participants, including high-ranking representatives from national and local authorities, scientists, members of the Forest Communications Network subgroup on forest pedagogy, NGOs, and community representatives, took part. Innovations were presented via pitch sessions and live demonstrations during a field trip. This was complemented by engaging activities for children and young people, including hands-on educational formats and an exhibition of paintings produced by teenage artist, both dedicated to wildfire awareness raising.

Feedback was uniformly positive, highlighting the strong educational focus and the children's artwork, which left a powerful emotional message among participants. The event was also praised for its impressive line-up of participants from regional to national policy-making and public administration, and for strengthening connections between OICs, Living Labs, and FIRE-RES partners. High-level speakers, including the Bulgarian Deputy Minister of Agriculture, Mayor of Kazanlak, Head of the Department of Fire Safety and Public Protection General Directorate in Bulgaria, and university representatives, added further weight to the discussions. The field trip combined visits to recent fire-affected areas and high-risk forests with – variously – demonstrations of afforestation activities, undergrowth clearing, and drone-based fire mapping. Overall, the event successfully combined technical innovation, education, and community engagement, reinforcing the importance of integrated approaches to wildfire resilience.

Figure 9. Field trips: in-depth local learning opportunity.

During the third 'Innovation Days' event, held in Barcelona, Spain, in July 2025, the central theme was data provision and use for wildfire preparedness, response, and recovery. The program gathered 42 participants and combined pitch presentations, hands-on showcasing, and the interactive workshop "From Data to Impact" which explored how data can be better integrated into wildfire risk reduction and business model development.

The workshop combined perspectives from a variety of different relevant actors in the field of wildfire risk mitigation and management, based on data and data-driven technological social and other innovations. These ranged from international and European organizations, such as the United Nations' Food and Agricultural Organisations' Global Fire Hub, the European Commission's Joint Research Centre, and the Geo Knowledge Hub online platform – all of which are involved in creating global and regional strategies and data sets to address wildfire risk or develop risk mitigation and management tools and strategies on the basis of data – to the needs of emergency responders on the ground. The workshop also included a guided exercise to identify data-driven product and business opportunities, and market niches, that invited innovators to strategically focus their ongoing endeavours in the field of wildfire risk mitigation and management.

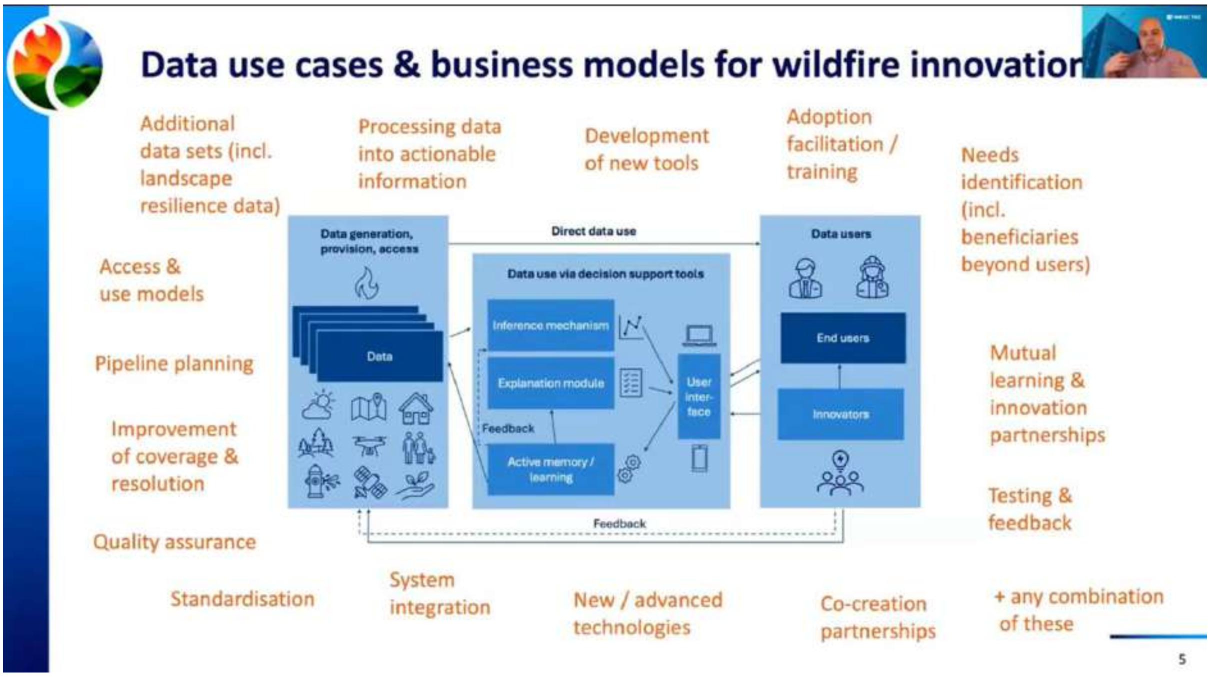

Figure 10. Exercise on data-driven product and business opportunities conducted during "Innovation Days" in Barcelona. (Orange markings define market niches in the field of wildfire risk mitigation and management)

The part of the pitching session that stood out in this particular iteration of the 'Innovation Days' format was the added element of investor feedback, which provided innovators with concrete guidance and boosted the relevance of the exchanges.

Participants valued the collaborative atmosphere, the effectiveness of the matchmaking, and the balance between structured sessions and informal networking. The workshop sessions on preparedness, response, and mitigation highlighted data-driven innovations for resource management, suppression operations, and recovery, while the networking showcase encouraged further dialogue on practical applications. In their reflections, participants suggested that this format should be continued in future editions, underlining the event's role in advancing data-driven innovation for wildfire resilience.

Figure 11. Conference format: knowledge exchange between innovators and key stakeholders.

Although primarily developed with OIC participants in mind, the events were enriched by presentations and showcases from internal FIRE-RES Innovation Action. This integration facilitated knowledge exchange and helped strengthen the bridge between internal and external innovation ecosystems. Importantly, the events offered visibility and learning opportunities for early-stage or small-scale solutions, helping them attract partners, gather feedback, and advance their readiness.

In addition to the opportunity to present innovative solutions to each other amongst innovators, and to potential local partners, users and beneficiaries in the audience, the Innovation Days in Bulgaria also created additional synergies within the FIRE-RES Hub by playing host to local in-situ product testing activities carried out by innovators from the OIC cohort (more on this below).

Overall, the FIRE-RES Innovation Days series worked well. Feedback received from innovators shows that this type of event is highly needed for facilitating connections between innovators and potential adopters.

Similarly, tagging innovation exposition and matchmaking activities onto existing expert conferences on topics of wildfire locations and the realities they face or wildfire risk mitigation and management, provides a very cost-efficient opportunity to achieve similar effects, although on a smaller-scale.

One example, of this kind of approach taken by the FIRE-RES Hub was its contribution of a side event at the 8th Mediterranean Forest Week, held in November 2024 in Barcelona, Spain (pictured below).

Figure 12. FIRE-RES side event during 8th Mediterranean Forest Week in Barcelona.

Innovation Testing Activities

Whether as part of a conference or as a stand-alone activity in the LLs, the innovation testing activities constituted another valuable component of FIRE-RES's brokerage of innovation up-scaling partnerships – for real-world test beds are an essential asset to innovators. Testing activities were coordinated via the FIRE-RES Innovation Acceleration Hub for project-external innovators from the OIC, and directly between project partners leading Living Labs and project-internal innovators from the Innovation Actions. They provided an opportunity to assess and prove their innovations' effectiveness and value in terms of technical functionality, suitability for realistic place-based conditions, fit to user needs, ease of operation, and general likelihood of adoption. In short, they are instrumental in understanding innovations' up-scaling potential and / or any factors likely to hinder widespread adoption, as well as an opportunity to solicit feedback on how to address them.

Based on a competitive selection process due to limited number of opportunities, OIC innovations were allocated to Living Lab locations for testing as shown in the table below:

Table 2. Allocation of Open Innovation Challenge participants to Living Labs for testing

Innovation Name	Living Lab	Support Type
Wildflyer - Wildfire Intelligence	Nouvelle Aquitaine – France	Pilot
Increasing Resilience of Assets Facting the Risk of Wildfires	Portugal	Pilot
TEP - The Emergency Programme	Chile	Pilot
Forest Fire Assistant (FFA)	Sardinia – Italy	Pilot
MOSAICO	Germany–The Netherlands	Pilot
IRIS, Incident Command Intelligent Assistant	Galicia – Spain	Pilot
FireWiseTeam: when ecology met community	Catalonia – Spain	Demo
Smoke Meter	Catalonia – Spain	Demo
Typhoon Firefighting System	Norway	Demo
Extreme wildfire prevention using ForestSIM	Portugal	Demo
Early forest fire detection and prediction system	Nouvelle Aquitaine – France	Demo
PREVENT: The Firefighting Vase	Galicia – Spain	Demo
Trigan: Responsive & Collaborative Wildfire Preparedness	Norway-Sweden	Demo
Wildfire awareness videos	Chile	Demo
Raised-relief maps	Sardinia – Italy	Demo
ADA Wildfire - Action Plan	Norway-Sweden	Demo
Mejor Technologies, Fast detection system	Bulgaria	Demo
Q.SYSTEM - Avionic System for Integrated Aerial Firefighting	Canary Islands – Spain	Demo

SILVA4BOS	Germany–The Netherlands	Demo
EmberEye	Greece	Demo
Papageno wildfire containment system	Canary Islands – Spain	Demo

The testing period started at the end of 2024 (Final allocation of innovations to LLs was communicated on the 16-10-24), and it lasted until 31st of July 2025. The testing aimed to evaluate the functionality, adaptability, and impact of each solution. Testing activities varied depending on the maturity and type of solution - from pilot deployments to demonstrations to end-user. This process not only helped innovators refine their solutions but also fostered collaborative learning between them and CWI stakeholders in related Living Lab.

Figure 13. Briefing before Demonstration of Q.System in Gran Canarian.

As part of the Open Innovation Challenge, FIRE-RES allocated funding to support testing activities of selected innovations. These testing activities were to happen in one of the 11 Living Labs in Europe and South America. From a total of 55 innovations accepted into the OIC programme, 21 solutions were selected for funding - 15 received 5,000 € for Demonstration and 6 received 15,000 € for Piloting, to support the testing of their solutions in close to real-world environments.

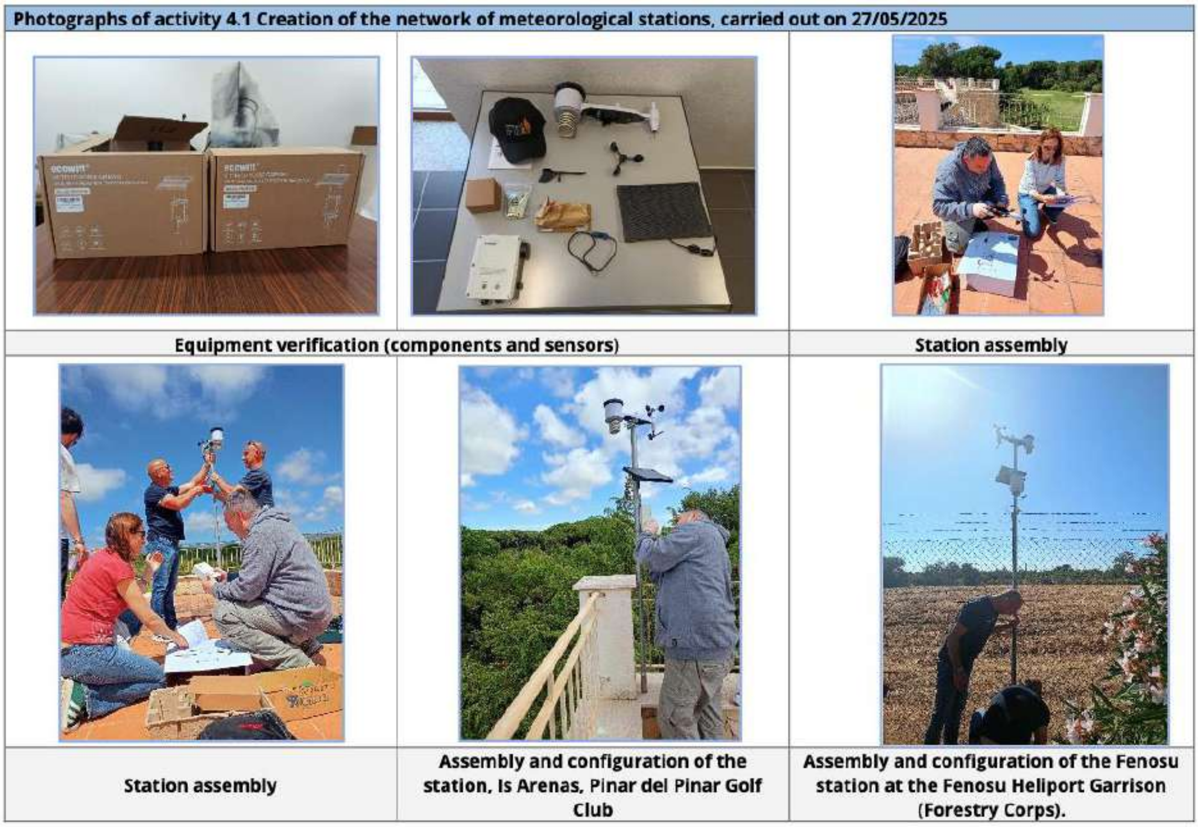

Figure 14. Piloting activities of Forest Fire Assistant in Sardinia.

Alongside the OIC-funded testing of external solutions, project-internal Innovation Actions were also implemented within the Living Labs. In this context IAs coordinators work directly with Living Labs leaders and local Community of Wildfire Innovation (CWI) to deploy and demonstrate their innovations in the designated intervention zones. LL leaders facilitated implementation and logistic while CWIs mainly acted as a space for feedback and knowledge exchange, and in some cases also served as an important data source. They provide insights into local needs, supported participatory evaluation of IAs, and helped ensure relevance for end-users needs.

Project-internal Innovation Actions were tested in Living Lab locations as follows:

Table 3. Allocation of Innovation Actions to Living Labs for testing

Innovation Name	Living Lab
IA 1.1. Piloting an adapted Forest Fire Potential Polygons methodology to improve decision making on EWE	Catalonia – Spain, Chile, Norway-Sweden, Portugal
IA 1.2. Testing key inputs for atmospheric data analysis using new knowledge and expertise on EWE	Catalonia – Spain, Chile
IA 1.3. Piloting early-warning indicators of EWEs incorporating fire-weather and vegetation conditions	Nouvelle Aquitaine – France, Bulgaria, Catalonia – Spain, Galicia – Spain,

	Germany–The Netherlands, Greece, Norway-Sweden, Portugal, Sardinia – Italy
IA 1.4. Integrated fire management model: bases, demonstration and piloting activities	Catalonia – Spain, Germany–The Netherlands, Portugal, Sardinia – Italy
IA 1.5. Demonstration of innovative post-fire restoration and adaptation strategies	Canary Islands – Spain, Catalonia – Spain
IA 2.1. Improving data acquisition for landscape design based on novel remote sensing methods	Nouvelle Aquitaine – France, Catalonia – Spain, Greece, Norway-Sweden, Portugal
IA 2.2. Scheduling and implementing novel management practices	Nouvelle Aquitaine – France, Bulgaria, Catalonia – Spain, Portugal, Sardinia – Italy
IA 2.3. Defining recommendations for improving security on WUI at multiple scales	Canary Islands – Spain, Catalonia – Spain, Chile, Portugal
IA 2.4. Optimizing landscape configuration and fire management policies to minimize expected losses from EWE	Nouvelle Aquitaine – France, Catalonia – Spain, Chile, Greece, Portugal
IA 2.5. Designing strategic networks of managed areas to improve suppression efforts against EWE	Bulgaria, Catalonia – Spain, Portugal
IA 2.6. Designing post-fire restoration strategies	Canary Islands – Spain, Catalonia – Spain, Portugal
IA 2.7. Landscape design strategies, using tactical planning methods	Catalonia – Spain, Chile, Greece, Portugal
IA 2.8. Trade-off ES assessment of fire-resilient landscape design	Catalonia – Spain, Greece, Portugal
IA 3.1. Fire wine – engaging wineries in maintaining fire-resilient territories through a label	Catalonia – Spain
IA 3.2. Financial incentives for fire-resilient landscape measures	Catalonia – Spain
IA 3.3. Parametric solutions for insurance products	Catalonia – Spain, Galicia – Spain, Portugal
IA 4.1. Fire forums	Nouvelle Aquitaine – France, Catalonia – Spain, Portugal
IA 4.2. Testing a new methodology for risk communication to improve WUI homeowners' culture of risk	Nouvelle Aquitaine – France, Portugal, Sardinia – Italy
IA 4.3. Fire Education Platform – An immersive tool for policy-makers, schools and families	Portugal

IA 4.4. Fire-safe villages	Chile, Galicia – Spain, Portugal
IA 4.5. Testing regional-level policy clinics for inclusive and coherent firesmart risk governance	Catalonia – Spain, Portugal
IA 4.6. Piloting a Firesmart planning platform and conceptualization tool	Catalonia – Spain, Portugal
IA 4.7. Testing an Interoperability evaluation tool	Norway-Sweden
IA 4.8. Demonstrating strategies and tools for smart communication to citizens	Not applicable
IA 5.1. Demonstration of an integrative umbrella system for estimating EWE risk and impact in real time with HR weather data	Nouvelle Aquitaine – France, Canary Islands – Spain, Catalonia – Spain, Galicia – Spain, Germany–The Netherlands, Portugal
IA 5.2. Demonstration of real-time EWE simulation and smoke spread based on coupled fire-atmosphere approaches using of HR weather data	Nouvelle Aquitaine – France, Canary Islands – Spain, Catalonia – Spain, Germany–The Netherlands, Portugal
IA 5.3. Advanced vegetation characterization based on Earth Observation data fusion and Artificial Intelligence over forestland ecosystems	Catalonia – Spain
IA 5.4. Piloting models for fire combustion and Pyrocumulonimbus with use of HR data	Norway-Sweden
IA 5.5. Testing of vertical atmospheric structure models based on satellite constellation in EWE	Nouvelle Aquitaine – France, Canary Islands – Spain, Catalonia – Spain, Galicia – Spain, Germany–The Netherlands, Portugal
IA 5.6. Prototyping HAPS (High Altitude Pseudo Satellites) contribution to Europe's resilience against EWE	Nouvelle Aquitaine – France, Bulgaria, Catalonia – Spain, Galicia – Spain, Greece, Portugal, Sardinia – Italy
IA 5.7. Quantifying impacts of exposure to air pollutants from wildfires	Catalonia – Spain, Galicia – Spain, Portugal
IA 5.8. Prototyping and testing innovative tools for EW ICS training certificates	Portugal, (originally also planned for Catalonia and Germany–The Netherlands)
IA 5.9. Tools for international collaboration through shared operational information for specialized stakeholders	Catalonia – Spain
IA 5.10. Development of a Pan-European system to define management priorities to mitigate fire impact	Nouvelle Aquitaine – France, Bulgaria, Canary Islands – Spain, Catalonia – Spain, Galicia – Spain, Greece, Norway-Sweden, Portugal, Sardinia – Italy

The implementation of IAs was not a one-off activity but an ongoing, transdisciplinary process adapted to the specific socio-ecological and institutional context of each Living Lab. There was considerable variation among the IAs. All have been implemented in the LLs at different levels. However, a few IAs were not tested in all LLs as initially planned, while others reached more LLs than expected. Overall, the testing process has shown strong adaptability, with methodologies being tailored to local contexts and conditions. The range of tested solutions was broad, spanning from early-warning models and novel fuel management practices to restoration strategies and community-based approaches. IAs demonstrated clear improvements over existing systems, such as greater accuracy in forecasting, more effective spatial planning, and better integration of fire-resilient infrastructure. Many also produced transferable outputs: simulation tools, optimization frameworks, and decision-support platforms, that can be scaled to other regions. Together, these results underline the practical impact of IA testing in reducing wildfire risk and the added value of building a diverse innovation ecosystem where operational, social, and policy activities reinforce each other.

Feedback on the innovations tested in the LLs was highly positive, with stakeholders recognizing both the technical advances and their potential for practical use. Many highlighted the innovative character of the IAs and OICs, noting that they responded to real needs in fire management by offering more reliable forecasts, more effective fuel management options, and context-specific restoration or prevention strategies. Importantly, CWI stakeholders appreciated that the innovations were not only scientifically grounded but also operationally relevant, showing promise for integration into existing systems. Several participants emphasized the importance of user-friendly formats, such as platforms or visual outputs, which made complex modelling results easier to interpret and apply.

Innovators who took part in testing highlighted the value of feedback from fire-service professionals, potential users, and experts in real conditions, as it helped them confirm whether their solutions worked, identify areas for improvement, and build connections with others in the wildfire field. Participants involved in piloting under the Acceleration Programme also mentioned the importance of turning ideas into working solutions, checking their accuracy and reliability, and making adjustments that improved performance. They further noted the benefit of learning about other solutions across Europe and in the Living Labs, and recognised that access to funding was essential for carrying out the piloting.

According to the Innovators, the testing phase was considered highly effective:

- *"The demonstration opportunity in the living labs was very useful to us both from a technical point of view and to interact productively with stakeholders."*
- *"We had a very good experience surrounding our demonstration activity in Greece. We are now following up on it and trying to secure a pilot with the connections we made."*
- *"This experience was profoundly enriching, as it validated the real-world usefulness of the system in critical contexts, led to concrete improvements based on the experiences*

of local stakeholders, and strengthened the relevance of Forest Fire Assistant (FFA) as an innovative tool tailored to real needs. The direct interaction with specialists and communities provided a practical and valuable perspective that significantly enhanced the quality of the development."

Majority of the testing activities was well-received, and was successfully completed within the designated timeframe. However, one exception was OIC09, "FireWiseTeam: when ecology met community," which was unable to complete its testing activities within the FIRE-RES framework due to time constraints and overlapping obligations.

Testing process confirmed the value of Living Labs as real-world environments for co-development and validation. Both innovators and local stakeholders benefited from these interactions, reinforcing the importance of place-based experimentation in developing practical, scalable solutions for fire-resilient landscapes.

Example of unsolicited feedback received from OIC participant after the testing activities (OIC45)

"Participating in the innovation challenge of the FIRE-RES project has been a profoundly enriching and transformative experience. Through this process, we have had the unique opportunity to turn an idea into a concrete solution, successfully implementing the Forest Fire Assistant (FFA) system in a highly complex real environment such as the region of Sardinia, Italy.

We would like to express our sincere thanks to the European Forest Institute (EFI) for their vision and support through the FIRE-RES programme, as well as to the Regional Forestry Agency for the Development of the Territory and Environment of Sardinia (Fo.Re.S.T.A.S.), for their trust, institutional commitment and constant collaboration, both technically and logistically. We also extend special recognition to the operational staff of the CFVA (Forestry and Environmental Surveillance Corps), particularly the Fenosu team, for their key support in the implementation and operation of the weather stations.

We warmly thank the Living Lab Sardegna and its organizing team, for offering us the space, the technical support and the openness to develop this innovation from its early stages to validation in the field. Thanks also to the Municipality of Narbolia, the Prefecture of Oristano, the Civil Protection team, the Association of Volunteers Nucleo Operativo Soccorso, and the Is Arenas / Sinis Golf Club, for their availability, Infrastructure and active accompaniment. No less important has been the contribution of the members of the local community of Narbolia, who showed a genuine interest and willingness to collaborate, thus strengthening the participatory approach of this experience.

The implementation of the FFA system in Sardinia has been a real milestone, as it allowed us to deploy the complete technological value chain, from conceptual design to real-time environmental monitoring, including risk analysis, alert generation, multi-channel communication and operational evaluation. This experience represents the birth of a tool that will undoubtedly contribute to protecting the environment, saving lives, preserving property and strengthening the resilience of vulnerable communities in the face of extreme forest fires.

We firmly believe that this is just the beginning of a path of applied innovation, where technology, institutional cooperation and social commitment are integrated to face the challenges of climate change and environmental risk. This achievement not only shows that it is possible, but that it is urgent, necessary and replicable.

To all the people and institutions that made this possible: Thank you!"

4. Individualised partnerships brokerage

In addition to the partnerships brokerage activities provided as part of the general acceleration programme of the FIRE-RES Innovation Hub, a number of tailored individual activities, such as targeted introductions and customised coaching, were also available to the innovators through the Hub.

Access to expertise and key stakeholders

Firstly, innovators were invited to use the above-mentioned pitching opportunities (online and in-person) to identify and connect with potential collaborators. While this often happened directly between the innovators, there was also always the option of the Hub facilitating introductions on request. These mostly served one of two functions: the establishment of technology partnerships or the bundling of multiple innovative solutions originating from separate innovators to address wildfire-related issues in a comprehensive and coherent way. Examples of partnerships that came about through these opportunities are the one between OIC participants Hephaesnus and Terrafarmers (spontaneous connection following a meeting at Penafiel, during Portugal Innovation Days in October 2024, https://fire-res.eu/innovation-collaboration-takes-off-to-new-heights-fire-res-brings-together-wildfire-entrepreneurs-working-with-drones-and-firefighting-projectiles/) and between OIC participant Umgrauemeio and FIRE-RES partner Inesc Tec (facilitated connection after the Barcelona Innovation Day).

In the same vein, but in a more dedicated fashion, the Hub created an opportunity for FIRE-RES innovators to engage with international institutions aiming to facilitate integrated wildfire management through data provision as well as end users of wildfire-related data at a workshop that was held in the context of Innovation Day in Barcelona in July 2025. Most importantly from the perspective of partnerships brokerage for innovation up-scaling, the workshop brought the innovators together with high-level representatives from international and EU institutions involved in the provision and impact maximisation of data in the field of wildfire risk mitigation and management. Foremost among them: 1) Representatives from the UN’s Food and Agriculture Organization’s Global Fire Hub, who invited the innovators to become involved in the institution’s newly founded working group on fire data. This provided them with an opportunity to keep up to date with developments in international discussions about the role of data in wildfire management and global provision of data relevant to this field, as well as the opportunity to input into debates and to help maximise the impact of data use in their field of activity. 2) A representative from the European Commission’s Joint Research Centre outlined the current state of data global wildfire provision and the pipeline of future data products and thematic and geographical focus areas. This identified data leveraging and new innovation opportunities that the innovators may seize in their activities going forward. Both main speakers of these interventions requested further information about the FIRE-RES innovators to proactively pursue relationships and invited outreach to them by interested parties in return. They also requested to be kept informed about FIRE-RES activities and its innovations, in order to continue to strengthen ties between the project and top-level international actors in the field.

In addition, the workshop on data provision and use also hosted end users of data-driven wildfire innovators, namely firefighters (FIRE-RES Forum webinars). Making the point that frontline operators are less interested in data per se but rely more on actionable information, and explaining what kinds of products they are looking for in their specific geographical location, these contributors were crucial in pointing the innovators in the direction of further innovation development and up-scaling considerations. A number of innovators present responded enthusiastically to this input and, as a result, innovation testing and new market entry opportunities are being explored on a bilateral basis at the time of writing.

In addition to collaboration and new market opportunities, the Hub also made it its task to identify expert advisors for FIRE-RES innovators on various topic areas related to wildfire risk mitigation and management, ancillary industries such as insurance, legal considerations, societal readiness of specific locations, community engagement questions, product use cases and adoption obstacles, and so forth (Innovation Skills Development webinars).

Figure 15. Examples of Innovation Skills Development and Wildfire Expertise Building webinars

Some of these were introduced to the innovators as speakers at training seminars and then conversations were pursued on a bilateral basis. In other cases, experts were paired with innovators on a needs and request basis after targeted identification and mobilisation on behalf of individual innovators.

In a similar vein but relying on in-house experts associated with FIRE-RES as project partners, the Hub further provided guidance to innovators from both the OIC and the IA cohort in the form of knowledge sharing and advice on product-market fit, market analysis, and business models.

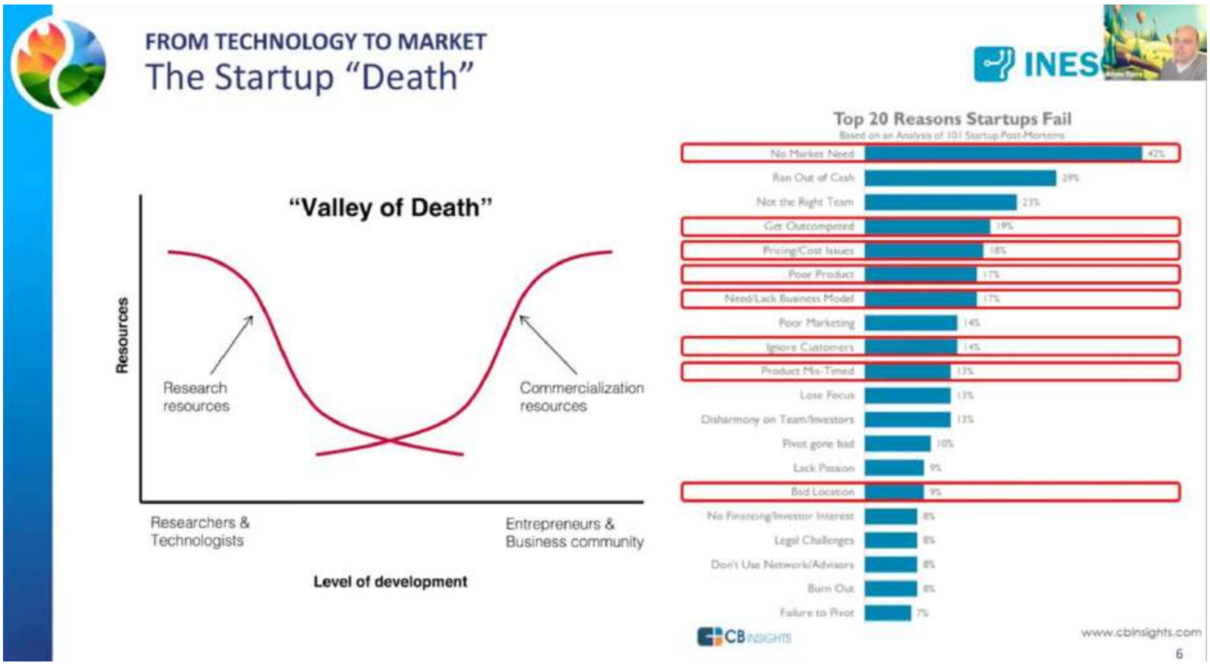

Figure 16. Example of training with internal experts.

Support of exploitation plans

For IA innovators, a dedicated programme of concrete, guided planning exercises for exploitation plan and business model development was created, and individual tailored coaching relevant to their up-scaling efforts covered – upon request – coaching on user definition and product ideation, client acquisition and marketing communications, and research methods for technology development. The exploitation plan and business model activities, led by INESC TEC, were designed to facilitate the uptake and replication of relevant FIRE-RES outcomes as part of a broader transition towards integrated wildfire management and alignment with EU, national, and regional policy targets. At the core of this effort is the development of a do-it-yourself guide for self-assessment of innovation readiness, covering dimensions such as technology maturity, customer and social acceptance, funding, and IPR. Building on real-life FIRE-RES Innovation Actions, the guide identified barriers, and proposed strategies to overcome them. Promising project outputs were clustered for synergetic impact, and those with highest scalability potential received tailored exploitation support, including validation of customer readiness, sustainable business model design, IPR strategies, investor access, and go-to-market planning. The coaching stream on user definition and product ideation, exemplified by [IA 3.1](), demonstrates how engaging end-users (e.g., wineries) through co-creation and branding strategies can generate incentives for fire-resilient territorial management, offering a replicable model of stakeholder-driven product ideation. Similarly, client acquisition and marketing communication were explored through [IA 4.7](), where the testing of an interoperability evaluation tool highlighted the importance of early client engagement, clear value articulation, and structured communication strategies for market adoption. Finally, the methodological dimension of technology development was supported through case of [IA 5.10]() which highlight the need for robust, pan-European research frameworks that combine system modelling with practical field-level validation to define management priorities for mitigating fire impacts.

FIRE-RES exploitation planning ensured that innovation is not only technically sound but also community-aligned, market-ready, and policy-relevant. User definition and co-creation open pathways for stronger adoption, systematic marketing and communication strategies are critical for client trust-building.

5.Partnerships and up-scaling impacts

FIRE-RES associated innovators reported the following impacts as a result of their engagement in the partnership brokerage activities offered by the FIRE-RES Innovation Acceleration Hub: strengthened networking benefits, which increased wildfire context-specific expertise and created new avenues for international collaboration, both through technology development partnerships and product bundling partnerships. These connections opened opportunities for investment and fostered relationship-building with potential clients and end users, establishing critical preconditions for innovation acceleration, exploitation, and ultimately, up-scaling. The majority of innovators indicated measurable progress across at least one of seven innovation readiness dimensions, with several advancing simultaneously across market, user, societal, business, operational, legal, financial, and organizational readiness domains. Importantly, 100% of participants expressed satisfaction with the FIRE-RES Open Innovation Challenge, underlining the added value of these mechanisms. Capacity building, particularly through the FIRE-RES Forum, and Innovation Development skills webinars further reinforced outcomes by complementing networking with knowledge-sharing. Testing activities hold in Living Labs exemplified them as platforms for co-creation and exchange. Innovators also emphasized the outreach potential generated through partnerships, which accelerated their business reach and even catalysed the identification of additional product ideas. Entry points into new markets, combined with pathways for social and institutional integration, provided a foundation for the most fundamental forms of up-scaling. While Investor feedback confirmed the robustness of these impacts, the real significance was demonstrated in follow-up actions, such as organized calls with Dryad Networks, MEJOR Technologies, and HoZe Solutions. This naturally leads to the next section, where one exemplary case illustrates the experience of one of the OIC participant, and transformative potential of FIRE-RES partnerships brokerage.

Exemplary Success Story: The Experience of MEJOR Technologies (OIC66)

The FIRE-RES Open Innovation Challenge (OIC) served not only as an acceleration mechanism for wildfire-related technological innovation, but also as a dynamic brokerage platform, facilitating partnerships across regions, sectors, and readiness levels. For MEJOR Technologies, led by CEO Melvin Sieben, participation in the programme highlighted the critical role that structured yet flexible networking environments play in building trust-based connections: *“The network was very interesting for me,” Sieben reflects. “To have a European-validated network of people that actually have the problem we’re trying to solve, that’s incredibly valuable.”* Some of these connections were brokered formally through the project, such as via EFI’s facilitation. Others emerged organically at events like Innovation Days and Living Lab demonstrations.

MEJOR Technologies adopted a proactive approach, requesting introductions to all Living Labs and directly reaching out to stakeholders. In some cases, however, converting early interest into concrete discussions proved difficult due to differences in organisational priorities, administrative processes, or communication styles. This made clear to the company how valuable brokerage support can be when navigating diverse institutional landscapes. This experience illustrates both the opportunities and limits of passive matchmaking, underscoring the importance of active facilitation. Where FIRE-RES acted as a facilitator, linking innovators like MEJOR Technologies directly with agencies in need, trust barriers were reduced and the path to implementation became clearer: *“It saves a lot of time and effort to be connected and introduced by a project like this. If FIRE-RES says this solution was evaluated by us, it’s much easier to establish contact.”* Melvin added.

However, Sieben also noted that some brokerage processes could have been more strategically geared towards business acquisition. Despite receiving introductions, MEJOR Technologies did not secure immediate clients through the OIC. Identifying the key role of the Living Labs and their strong engagement with the Innovation Hub to ensure close alignment of objectives and effective processes an important area of potential improvement in the setup of FIRE-RES’s innovation acceleration programme, the reason for this was insufficient alignment between demonstration activities and procurement interest: *“I really thought that because of the selection procedure upfront, the connections between us and stakeholders having a problem would be an immediate match. We got zero customers out of the project, which I definitely thought would be secured, especially after we got a demonstration budget.”*

Importantly, the benefits of the brokerage extended beyond public stakeholders to include peer-to-peer connections among innovators. For MEJOR Technologies, what might traditionally be seen as a competitive space instead fostered a sense of shared mission: *“It was nice to connect with other innovators, to see that you’re in the same boat, sometimes facing the same issues.”* Sieben also observed meaningful collaboration between other OIC participants: *“I saw people from EmberEye and Dryad connecting during Innovation Days in Barcelona. From the outside, you’d think they’re competitors, but everyone was really willing to help each other out.”*

In conclusion, the FIRE-RES OIC enabled a multi-level partnership brokerage model: from structured introductions to spontaneous alliances, while highlighting opportunities to strengthen the translation of early engagement into sustained collaboration or adoption. The experience of MEJOR Technologies demonstrates that while brokerage can open doors, active mediation, strategic matching, and well-facilitated follow-up are essential to converting connections into lasting partnerships.

6.Discussion & Conclusion

The FIRE-RES Innovation Hub together some separate project-internal processes provided a very comprehensive programme of innovation development, acceleration, exploitation and, ultimately, up-scaling support. However, uptake of the activities and opportunities offered varied considerably among individual innovators in both cohorts, the OIC and IAs. In addition, project-internal innovators needed more extensive information and encouragement to develop an understanding of its benefits and a willingness to engage with it than the generally entrepreneurially oriented external innovators. This may be due to the financial pressures on private sector innovation endeavours, which makes the need for widespread adoption and, therefore, upscaling more apparent, and hence appreciation of the activities and opportunities greater. However, even not-for-profit endeavours in the field of wildfire risk mitigation and management should stay focused on impact creation, and for this wide adoption is crucial.

Innovators' individual contexts also played a role in uptake as they vary vis-à-vis their up-scaling potential and readiness, and their partnerships brokerage needs. Especially when working with early-stage or academic research-driven innovations, it is helpful to have a general acceleration programme containing broad match-making activities and introductions to business-relevant areas of activity and expertise. However, especially when dealing with very dynamic and more experienced innovators (whose innovations may be more advanced), it is helpful to be ready provide tailored contracts brokerage on request.

The FIRE-RES Hub's experience shows that partnerships brokerage activities may be used to maximum effect in upscaling innovations when innovators fully espouse the objective of their innovation endeavour to be practical application and they appreciated the activities' value in achieving them. For this, it is sometimes necessary to facilitate a mindset shift in (both inexperienced and sometimes experienced) innovators: from research to entrepreneurialism, from individual innovations to innovation bundles, from minimising competition to maximising collaboration. In the context of wildfire risk mitigation and management, the latter two may have even greater significance than in other fields. In addition, specific to this context, another important paradigm shift that innovators need to consider is that the sector needs to move away from a focus on technology and the flame per se towards integrated and holistic thinking, both regarding the components of wildfire risks addressed and the format of the solutions proposed.

Partnerships brokerage supports all areas of innovation maturity or readiness development, from technology or functional readiness to market or user readiness to society readiness to business or operational model readiness to legal readiness to funding readiness to team or organisational readiness. This innovation acceleration is an essential precondition for upscaling. The more innovators engage in activities what expose them to potential partners, the more likely they are to advance quickly in the development of their innovation to market application level.

Projects aiming to facilitate innovation development and upscaling do well to set up an ecosystem of co-creation location and in-situ test beds for innovators to be exposed to relevant innovation needs and context-specific insights about opportunities, constraints and potential clients and users, and to include clear milestones and binding deliverables related to partnerships brokerage activities and upscaling targets.

Summary of the Lessons Learnt

- Centralised activity coordination via the FIRE-RES Innovation Hub allowed for effective innovation acceleration impact across different constituencies of solutions seekers and providers.
- Input from the Living Labs during the formulating of the wildfire challenges to be prioritised and their feedback to innovators testing their products throughout the project duration ensured relevance and utility of the innovations developed and advanced by FIRE-RES in a range of geographical and socio-cultural contexts, and increased the likelihood of buy-in and adoption by users in these contexts and beyond.
- The two-pronged strategy for innovation recruitment had the advantage of allowing the recruitment of a more comprehensive and more varied set of innovations to the project. It also complemented the strong research focus of some of the project-internal innovations with a larger number of more entrepreneurially oriented ones. This allowed the project to create strong links to the existing and ever-increasing private sector activities in this field, i.e. to an important part of the relevant community of practice that addresses wildfire risk mitigation and management.
- The current state of the 'market' of wildfire risk mitigation and management innovations is skewed towards technological and firefighting equipment solutions, and this was reflected in the recruitment of innovations via the OIC, while the Innovation Actions were designed to account more meaningful for a broader range of innovations covering phases of fire other than the response and suppression phase during fire events (namely prevention and preparedness, and recovery and adaptation) and social and ecological innovations alongside technological ones. To do justice to the comprehensive understanding of wildfire resilience espoused in FIRE-RES, corrective measures should have been taken to promote a more even spread of innovations in the OIC cohort as well.
- To meet different innovators' partnerships brokerage needs, support programmes should involve a variety of activities that allow innovators to cast the net widely for dynamic discovery of opportunities as well as to focus on achieving strategic objectives through dedicated introductions.
- Pitching opportunities (online and during in-person events) effectively deliver visibility, networking, and pathways for innovation upscaling. Online formats allow

for a wider reach but are potentially a slightly weaker entry point for partnerships, while in-person events may reach a smaller audience, but are more conducive to deeper immediate engagement and connection with prospective partners.

- Providing a regular feedback and co-creation platform in a setting of open and mutual sharing removed from considerations of potential market competition among familiar partners and 'friendly critics' within the close-knit community of practice with the FIRE-RES project, allowed for in-depth constructive feedback in a way that public events may not.
- Tailoring in-person Innovation Days to the regional fire ecology, stakeholder landscape, priority innovation needs and discursive focus areas, and institutional frameworks increased relevance and engagement as well as specificity of feedback articulated.
- Embedding local field visits in in-person events adds significant value for the participants by providing dynamic and informal engagement opportunities and facilitating in-depth learning about relevant local contexts.
- Pitching session combined with ample networking opportunities (rather than a strong focus on pitching only) gives innovators the visibility and engaging opportunities with new contacts and prospective partners and clients that needs to be secured especially from the early stages of innovation endeavours through to market implementation and success.
- Bringing together multiple innovators at larger-scale in-person events opens up avenues for collaboration that might not have emerged in contexts of sequential opportunities created specifically for individual innovators.
- While innovators may assume that they require very targeted feedback from specific stakeholders, bringing them together with diverse groups of stakeholders, potential users, clients, advisors and partners provides them with a variety of perspectives and helps them gain more comprehensive insights during networking sessions.
- The testing of innovations in the Living Labs confirmed the value of real-world environments for co-development and validation, reinforcing the importance of place-based experimentation in developing practical, scalable solutions for fire-resilient landscapes. Innovators benefited from these interactions by receiving feedback on the utility, usability, product-market fit, features and extension and improvement opportunities of their innovations. Local stakeholders gained insight into individual cutting-edge innovations and developments in the field of wildfire risk mitigation and management innovation in general that allowed them to identify relevant products for their future adoption. It also initiated connections between both groups to build partnerships of various kinds and directly facilitate adoption of innovations in matching on-the-ground locations.
- While the Innovation Hub provided a very important link between the solution seekers in the Living Labs and the solution providers in the OIC and IA innovator cohorts, the more direct interaction of the Living Labs with the IAs seems to have

provided more concrete outcomes for the innovators than the more mediated interaction between the former and the OIC innovators. However, this perception might – in part – be due to the cohorts' different ambitions based on innovation maturity levels, with many IAs seeking product validation and many OIC innovators seeking users, clients and customers. Nevertheless, it can be said that a direct link between the challenge design in Living Labs, the selection process of project-external innovations for acceleration and, among those, solutions for on-the-ground testing would facilitate more direct adoption, market-entry and business opportunities.

- Extending the instruction (e.g. on innovation skills development and topic area specific knowledge transfer and expertise building) provided to innovators and mobilising actors involved in the provision of the innovation accelerations programme and their networks (including, here, the whole FIRE-RES consortium) on a needs-and-request basis is a very effective and particularly impactful way to go beyond a standardised support offer and provide individually tailored, in-depth coaching by experts from core and ancillary industries.
- In particular for early-stage and research-driven innovations, very strong partnerships brokerage for the purpose of business model development (including coaching on intellectual property protection, user definition, exploitation planning, market analysis, go-to-market strategy, and operational setup) and, where relevant, investor contacts – all variously provided by the FIRE-RES Innovation Hub to selected innovations – are key in achieving market-level maturity. In addition, business acquisition and sales support activities, which were not comprehensively part of the FIRE-RES innovation acceleration programme, would be conducive to facilitating effective innovation acceleration to the point of adoption.

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