

Final Conference Report

22/08/2019

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About Pilots4U

Pilots4U aims to setup one very visible, easily accessible network of open access pilot and multipurpose demo-infrastructures for the European bioeconomy with Europe-wide coverage and protecting IP rights of users. Since pilot- and demo equipment is very expensive and requires specific expertise, open access infrastructures are the most cost-effective manner to support the deployment of industry-driven innovations in the market.

Partners

















Networks















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1. EXECUTIVE SUMMARY

The Grant Agreement stipulates that a Final Conference Report shall be delivered to the European Commission by the end of the project. The report will give an overview of the project's Final Event and present the policy recommendations deriving from the Pilots4U project.

The Pilots4U project organised its final event with the title 'Pilots4U Final Event: Fast Forward the European Bio-economy' on 25 June 2019. The aim of the event was to demonstrate the Pilots4U database of open access pilot and demonstration infrastructures and how the network will continue, as well as to communicate the policy recommendations of the project. The event also hosted a panel discussion on how to make the European bioeconomy more efficient and impactful, with a wide range of relevant speakers presenting recommendations and results from their projects and initiatives.

The event attracted around 45 participants representing many different stakeholder groups, such as the European Commission, pilot facilities, universities, industry, and regional authorities. About 25 people also took part of the event over Skype, mostly representing pilot facilities.

2. Introduction

The Pilots4U project organised its final event with the title 'Pilots4U Final Event: Fast Forward the European Bio-economy' on 25 June 2019. The event took place at the Greater Birmingham and West Midlands Brussels Office in Brussels, Belgium.

The aim of the final event was on the one hand to demonstrate the Pilots4U database of open access pilot and demonstration infrastructures and how the Pilots4U network will continue. On the other hand, the aim was to communicate the project's policy recommendations resulting from an analysis of available and missing scale-up and demonstration infrastructures in Europe. The first part of the event was therefore structured around these topics.

The event was organised in collaboration with other initiatives with similar or overlapping aims and recommendations, namely the SmartPilots and ERIFORE networks, the Vanguard Initiative, the Interregional Partnership for Bioeconomy, and Interreg 'Component 5'. To bring out some common messages from the recommendations of the abovementioned initiatives, the second part of the event hosted a panel discussion on how to make the European bioeconomy more efficient from an interregional funding strategy perspective.

This report will present a detailed overview of the Final Event, together with some key takeaway messages which derived from the presentations and the panel discussion during the event. The report will also present the Pilots4U project's policy recommendations. A brief overview of the participants of the event will first be presented, followed by an introduction to the agenda and the presentations, with a special focus on the panel discussion. The key takeaway messages and conclusions from the panel discussion will be presented, followed by the Pilots4U policy recommendations.



3. FINAL EVENT

The Pilots4U Final Event attracted a great number of participants, representing several stakeholder groups, and presented a diverse and interesting agenda. Below follows an overview of the participants as well as an introduction to the presentations and the recommendations and messages deriving from the panel discussion.

3.1 Participants

To promote the Pilots4U Final Event, an invitation was sent out to all asset owners of the infrastructures represented in the Pilots4U database as well as to other potentially interested stakeholders, such as representatives of the European Commission, regional authorities, pilot facilities, etc. In addition, the event was promoted on social media and in several project partners' newsletters.

The invitation presented the aim of the event; the target audience; the partners who collaborated with Pilots4U for the panel discussion; the agenda for the event; and information on registration.





Figure 1-2: Screenshots of the Pilots4U Final Event invitation.

It was possible to participate in the Final Event both in person and via Skype for Business. As many of the project's key stakeholders are located outside of Belgium, such as the pilot facilities represented in the Pilots4U database, the Skype option enabled also these stakeholders to take part in the event.





The event attracted around 45 participants representing many different stakeholder groups, such as the European Commission, pilot facilities, universities, industry, and regional authorities. About 25 people also took part of the event over Skype for Business, representing mostly pilot facilities. Through the chat function, it was possible for participants to participate in the discussions and to pose questions to the speakers.

3.2 Agenda

The agenda of the Pilots4U Final Event was divided into two parts – the first part focused on presenting the importance of the work of the project, presented by the BBI-JU and the BIC, as well as on the main outcomes of the Pilots4U project. The second part of the event consisted of a panel discussion focusing on how to make the European bioeconomy more impactful and efficient in the future.

	Welcome		
10:00 – 10:05	Paloma Mallorquin, BBI-JU Project Officer		
10:05 – 10:20	Importance of an EU network for pilot and demo infrastructures to boost the European bio-economy		
	Nelo Emerencia, Director Programming, Bio-based Industries Consortium		
10.20 10.20	The Pilots4U project: key facts		
10:20 – 10:30	Katrien Molders, Pilots4U Project Coordinator		
10:30 – 10:40	The Pilots4U database: how to use it, how to be part of it		
	Pauliina Tukiainen, Senior Scientist, VTT		
10:40 – 10:55	Gaps in scale-up and demo infrastructures and how to fill them: Policy recommendations		
	Andrea Muñoz-Garcia, Consultant, NNFCC - The Bioeconomy Consultants		
10:55 – 11:05	How will the network continue?		
10.55 – 11.05	Wim Soetaert, CEO, Bio Base Europe Pilot Plant		
11:05 – 12:30	11:05 – 12:30 Towards impact and efficiency by linking results from EU projects to		
(inter)regional (funding) strategies for the bio-economy			
Pane	l discussion in cooperation with co-organisers (ERIFORE, SmartPilots)		
Moderated by Nelo Emerencia, Director Programming, Bio-based Industries Consortiu			
11:05 – 11:10	ERIFORE Project: Policy recommendation		
11.03 – 11.10	Pauliina Tukiainen, Senior Scientist, VTT		
11:10 – 11:15	SmartPilots Project: Policy recommendations		
11.10 – 11.15	Eric Goossens, Managing Director, Bioprocess Pilot Facility		
11.15 11.20	Pilots4U Project: Policy recommendations		
11:15 – 11:20	Wim Soetaert, CEO, Bio Base Europe Pilot Plant		
11.20 11.25	Vanguard Initiative (Bioeconomy Pilot)		
11:20 – 11:25	Daniela Sani, Aster S., Regional Representative in the Vanguard Initiative		



11:25 – 11:30	Interregional Partnership for Bioeconomy Hilde Vermeulen, Flemish Department for Economy, Science and Innovation
11:30 – 11:35	Insights of what cross-regional innovation investment is Pierre Padilla, Founder N-ABLE, Consultant to DG Regio of the European Commission
11:35 – 12:30 12:30 – 13:30	Discussion and conclusions Networking lunch

Figure 3: The agenda of the Pilots4U Final Event.

3.2.1 First Part

The Pilots4U Final Event was opened by the BBI-JU Project Officer of the Pilots4U project, **Paloma Mallorquin**, who gave an insight into the success of BBI-JU in the current framework programme by presenting some success numbers and stories. In her welcoming speech, she also touched upon the future of the BBI-JU and welcomed the Pilots4U database as an important contribution to the European bioeconomy.

Nelo Emerencia, Director Programming for the Bio-based Industries Consortium, started off his presentation by presenting the members and the mission of BIC. He emphasised the importance of a Europe-wide network of open access infrastructures and how Pilots4U through the establishment of this network is contributing to inter-connecting infrastructures around Europe. He also mentioned the importance of assessing the capabilities of such a network and of expanding these capabilities in order to meet the future needs of the bio-based industry.

The Pilots4U project was presented by **Katrien Molders**, Pilots4U Project Coordinator, from Bio Base Europe Pilot Plant. She presented the background and aim of the project as well as the scope of the Pilots4U database, such as technology scope and TRL levels of the infrastructures included in the database. Further, she presented the ongoing communication campaign to promote the database and some numbers indicating that the database is actively being used.

The new, updated version of the Pilots4U website was launched on the same day as the project's final event. The Pilots4U website moved from being a project focused website into being a database focused website. **Pauliina Tukiainen**, Senior Scientist at VTT Technical Research Centre of Finland, presented the new website through a video which gave a virtual tour of the new and updated functions of the website.

Andrea Muñoz Garcia, Consultant at NNFCC, gave an overview of the Pilots4U gap analysis – how the gaps were identified, validated and assessed. Thereafter, she gave a brief introduction to the three generic business cases which were developed as a result of the gap analysis, as well as the key outcomes of the Finance Strategy Roundtable in which these business cases were validated with financial experts. The three business cases focused on 1) Investment in equipment; 2) Investment in coordinating actions; 3) Investment in skills/expertise and knowledge generation. The three business cases built by Pilots4U also intend to highlight some of the key policy recommendations of the project.





The Pilots4U project ends in August 2019, but the aim is for the Pilots4U network to continue its activities. **Wim Soetaert**, CEO of the Bio Base Europe Pilot Plant, therefore presented the practicalities around the continuation of the network. His presentation included an overview of the foreseen tasks of the network in the future and the costs for performing these tasks, as well as the proposed post-project governance model, which would be a subscription model, and how the membership would work under this model. Finally, he emphasised the strong need of support for the network, both from asset owners and from organisations such as BIC and BBI-JU, in order to keep the database alive also after the end of the project.

3.2.2 Panel Discussion

Messages from Pauliina Tukiainen, ERIFORE

Strategic cross-sector integration and networking of more specific infrastructures is needed, but it requires a supporting environment. Collaboration under the ESFRI framework could provide a coherent and strategy-led approach on RI development from laboratory to pilot scale with the needed long-term financial support for distributed research and innovation infrastructure on forest-based bio-economy across value chains.

There is lack of functioning funding instruments for adequate support to capital investments to develop and maintain the open access pilot facilities. Technology infrastructures require high investment both in the set-up and in the keeping up with the state-of-the-art. This is particularly so for pilot plants and demonstration facilities in case ERDF funding is not available, therefore it would be important to develop new funding instruments to provide enough funding with significant budgets (> 10 M€) for capital investments for open access pilot facilities to build and upgrade piloting platforms for new innovative technologies.

There is also a need to deliver better co-ordination of the financial mechanisms available to provide greater clarity on what is available to encourage better co-ordination in use of resource between regions to deliver mutual benefit. This may require a need for greater central coordination.

Messages from Eric Goossens, SMARTPILOTS

SmartPilots Policy recommendations:

- 1. Invest wisely and focus on maintaining and further developing existing facilities to keep their state-of-the art equipment up-to-date.
- 2. Create mechanisms to encourage usage of already existing shared pilot facilities, even if these are located outside their own region.
- 3. Increase coordination and collaboration between pilot facilities, improve users' awareness of the available facilities and avoid overlapping investments in Europe.
- 4. Encourage companies to work together with SPFs from an early stage on, for example by offering small and medium-sized companies vouchers for such collaborations.

"Invest wisely", in (expensive scale-up) infrastructure as well as in skills and people. Eric mirrored the Pilots4U call to support the creation of (interregional) mechanisms to use existing state-of-the art facilities and ensure companies (incl. start-ups, SMEs and R&D&I organisations) can access the facilities already available. This includes increasing collaboration between open access facilities.



Companies and R&D&I organisations also need to be encouraged to work with pilot plants at an early stage to reduce common pitfalls in development and indeed benefit from the facilities to de-risk the development, speed up innovation and have shorter time-to-market. Colocation of a facility with start-ups, SMEs and corporates on a campus and support thereof can be a very effective way of increasing coordination and collaboration and by that speed up market-driven innovation.

Easy accessible and fast voucher systems have been created by INTERREG and H2020 project to subsidise SME access to pilot facilities, but the value of these could be further increased by making them 'structural' (not on a project basis) and allowing their use to expand beyond typical regional borders, to encourage the most cost effective use of equipment, facilities and professionals.

Messages from Wim Soetaert, Pilots4U

Wim commented that a limited number of pilot plant facilities is required across Europe. The initial investment costs (CAPEX) are extremely high, as well as the operational costs (OPEX) and the costs to keep the facility state-of-the-art are high. National/regional funding is a key source of support for pilot and demonstration activities, but locks access to expertise and equipment available outside the own region. This risks the proliferation of pilot plants and dilution of the business for all centres, which risks the collapse of facilities. This is a "recipe for failure".

Wim expressed frustration at the current Commission focus on R&D programmes rather than those that support wider engagement and support for pilot and demonstration infrastructure to drive forward developments at an advanced technology readiness level. This type of action also acts to bind the most promising potential workforce employees to fundamental research programmes as the temptation is to "follow the money" when making career choices. Research offers a more attractive and lucrative career path and so there is difficulty pricing the best candidates away and into pilot plants. This is causing skills shortages and constraints in the pilot and demonstration sector and could hamper development of the sector without the innovation and vision that such minds could provide.

Messages from Daniela Sani, Vanguard Initiative

The Vanguard Initiative is driven by a political commitment made by regions to use their smart specialisation strategy to boost new growth through bottom-up entrepreneurial innovation and industrial renewal in European priority areas. One of the priorities is the bio-economy.

This Vanguard Initiative has its foundations at the regional level. EU regions are the closest policy link to the bottom-up growth dynamics necessary for the renewal of our industrial fabric through their proximity to innovative partnerships and clusters. Such partnerships and clusters form eco-systems that are the catalyst for fast-growing innovative SMEs. Regional innovation ecosystems can and do develop solutions for significant societal challenges while delivering on the EU's ambitions for improved international competitiveness.

The Vanguard Initiative has adopted a specific position jointly with interregional S3 partnerships and other innovation actors, to ensure that the component for Interregional





Innovation Investments will be preserved in the new EU MFF, based on the following key elements: interregional nature, central management and openness. These elements are particularly crucial to booster the bio-economy in Europe.

Messages from Hilde Vermeulen, Flanders Interregional Partnership for Bioeconomy

This partnership is developing a financial investment plan based on smart specialisation assets of various S3-driven regions for the agreed business case 'lignin-based bio-aromatics' to accelerate their demonstration activities towards industrial production levels. To adopt the ecosystem to this objective, Hilde expressed the need for better co-ordination to facilitate greater utilisation of finance mechanisms as follow on of research and innovation grants received.

Messages from Pierre Padilla, N-Able

Also called for the "reshuffling" of resources to key areas of need and to provide for the ability to exceed the restrictions currently imposed by regional funding mechanisms. Innovation financial gaps are clear and the difficulty to address them increases as the size of the investment need increases, which inhibits the appetite for developing large projects. This is particularly true in a cross-regional collaboration context where other obstacles emerge which add to this challenge (information asymmetries, coordination costs, etc.). Pierre also called for the need to think in a "user-oriented" fashion. A shift in mindset is needed, we need to shift from 'grant' to 'investment' to lever private investment in close-to-market innovation.

The Component 5 as publicly presented by the European Commission and currently discussed by key EU institutions acting in the co-decision process goes in that direction. It was designed by European Commission services to provide support that is not available today and shift from a pure technology angle to a business-oriented innovation approach.

Open floor discussions

A summary of the policy needs included:

- Create a Europe for business! Create the policies that ensure Europe is truly business
 focused, breaking down the borders and barriers that currently hamper the movement
 of resources, skills and finance.
- Help the most innovative SMEs, to get what they need across Europe. Pilot facilities, wherever they are located, should be accessible to all European SMEs using regional funding = maximise mobility across Europe also on a regional level and by using regional funds.
- We need to shift from a technology-based mindset to a business-based mindset.
 Colocation of start-ups, SMEs and corporates will speed this up.
- Finding capable people to execute pilot and demonstration activities is currently a key issue. Funds still tend to be directed more towards fundamental research and this is not where open access pilot facilities are operating. Hence, professionals follow the money and preferably go to fundamental research institutes. The distribution of funds should be balanced more also with higher TRL level programmes.
- There was echoing of the need for a better understanding of the various financial instruments available across Europe, how to access these and how to break down barriers that have been highlighted as inhibitory to interregional actions.



In response:

- DG RTD delegates indicated that the EU plans to set up "Invest EU" to help with signposting to finance and indicated that a Circular Bioeconomy Investment Platform would be established in autumn 2019, supported by a business development manager with €100 million budget to leverage additional commercial funding. Any call for investment will need a good business plan.
- A panel member proposed to get rid of the Framework Programme R&D "call system" whereby thematic topics are decided by the European Commission's committees and others who are not knowledgeable of the 'real needs' in the field. Consequently, project consortia are formed to address needs in rather restricted thematic areas, rather than through the responsive-mode approach whereby innovative ideas and supportive groups drive the agenda. He believes that in this fashion, the groups can work more effectively across thematic areas to deliver more 'joined-up' programmes.

The panel discussion leader pointed out that the Bio-based Industries Joint Undertaking (BBI-JU) is an industry-led PPP. The Bio-based Industries Consortium (BIC) writes the annual work plans, resulting in the annual BBI calls, based on the input from industry. These calls are therefore 'bottom-up' calls rather than 'imposed by the EC'. Pilots4U is a result of this approach, responding to industry's call for action to create an infrastructure to assist and accelerate upscaling towards commercial operations.

The BIC/BBI approach is also helping to reduce some of the issues around cross-sectoral working. Call systems have their limitations as they cannot address all relevant (current and upcoming) thematic areas in one call.

The objective should continue to be for research to be more effectively targeted at clear technological needs.

3.4 Pilots4U Policy Recommendations

The Pilots4U network set up a free online database that lists European pilot-, demonstration-, and tolling-equipment for the scale-up of various bio-economy processes. This equipment is operated by several companies and institutes that work in an open access mode. The Pilots4U database currently contains 451 entries from 82 organisations in 20 countries and has 474 page views monthly (this figure is the average from the last two months).

Open access pilot and demonstration infrastructures allow industry to bring bio-economy innovations from the laboratory into industrial practice. They are open to all companies and research institutes and offer a wide range of innovative, state-of-the-art equipment and expertise. Early stage collaboration with such facilities substantially lowers the financial risk for the innovating company, by reducing the need for investment in a significant scale and an associated range of equipment, providing access to expertise in processing technology at scale, and as a result speeds up the commercialisation of their new product or process.

Typically, large-scale innovation infrastructures have very high initial cost and then require further investment and maintenance costs to retain capability. Therefore, supporting innovation policies at a regional, as well as at a European level, is of utmost importance to





safeguard the long-term existence of these innovation accelerators, to support the delivery of highly skilled jobs.

The Pilots4U project has the following key messages with the aim to strengthen the European landscape of open-access infrastructure:

- The number of assets currently included in the Pilots4U database show that Europe already has significant open access pilot and demo facilities. The gap analysis executed within the framework of the Pilots4U project did not reveal a shortage in facilities as such, in terms of capability to meet industry needs, but rather a strong need to further strengthen and invest in existing open access infrastructures to keep them state-of-the art and increase flexibility. It should be noted that this is applicable to most areas of Europe, with the exception of Eastern Europe, where a very small number of open access pilot/demo facilities were identified and therefore, new centres may be required in the future.
- To maximise the investments in and the potential of the existing facilities, Pilots4U strongly argues for a better mobility of funding across Europe, especially on a cross-regional basis, by extending the remit of existing regional funding mechanisms. Companies must be able to gain access to the equipment and expertise they need across Europe. Pilot facilities, wherever they are located, should be accessible to all European companies/SMEs using regional funding. This will contribute to create a Europe for business! We need to create the policies that ensure Europe is truly business focused, breaking down the parochial barriers that currently hamper the movement of resources, skills and finance, reducing capital efficiency and risking duplication of effort and investment.
- Furthermore, the gap analysis showed that the potential of existing open access infrastructure in Europe could be optimised, and risks of duplication minimised, by the creation of collaborative networks that own complementary infrastructures within a specific value chain, that could be used to facilitate co-working. The creation of the Pilots4U Network is an important first step in this direction.
- The gap analysis also detected a need to address knowledge gaps that currently hinder the development of bio-based technology, particularly related to issues encountered when delivering scale-up. Research projects oriented to solve scale-up knowledge gaps should be funded to build the knowledge base among experts, increase the pool of expertise and stimulate the development of bio-based technologies.
- Ensuring the Pilots4U database remains active and up to date will maximise the impact
 of the abovementioned recommendations, but this requires investments in time and
 effort. Pilots4U are examining opportunities to secure a mix of public and private
 support to back such efforts, which will contribute to delivering the above highlighted
 benefits.

It is the Pilots4U partnership's intention to continue the network beyond the project end date. As the negotiations for the new governance structure and financial model for the Pilots4U network will go on beyond the project end date, the Pilots4U project partners signed a Memorandum of Understanding with the aim to ensure the continuation of the network negotiations and the maintenance of the minimum services needed to keep the database functional and up-to-date until a new structure is up and running.