



VANGUARD INITIATIVE

ANNUAL REPORT 2021

Introduction from the Chair



During 2021 the East Netherlands, consisting of the provinces of Overijssel and Gelderland, was honoured to chair the Vanguard Initiative. Still amidst the uncertainties brought about by the Covid-19 crisis we took over from the previous chair, Wales. Together with the whole of the Vanguard Initiative, we are proud to have been active in this special year, and we look back on a year full of new endeavours and acceleration on existing activities.

This annual report provides an overview of all the results and activities of the network. We find it worth mentioning that this involves a lot of firsts: taking digital working to the next level and setting it as the new norm, the start of two new pilots, finding a way to keep a close relationship with our members who've been affected by Brexit, the development of a first Memorandum of Understanding with another European organisation, and a longer perspective ahead in our multi-annual plan 2030.

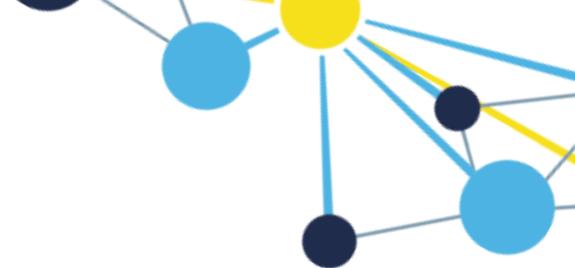
Working with a perspective on 2030 in order to be able to keep on strategically positioning the Vanguard Initiative as the regional network in industrial innovation was a main priority for the East Netherlands this year. This coincided with the start of the new European financial period, with new programmes starting where members and the network will be able to participate and set their mark.

In Europe, due to Covid-19, the political orientation has shifted and the innovation strategy, industrial leadership, greening and digitalisation are in full focus. A focus shared by Vanguard Initiative, where we need to stay at the forefront of developments by our development of regional ecosystems in a European perspective. Our strength lays in our bottom-up approach, creating critical mass and driving change in interregional value chains. We feel certain that our work this past year has contributed to the further professionalisation of our network and collaboration and based on this foundation we can build on our position in the years ahead.

The list of people contributing to the Vanguard network is too long to individually thank here. Instead a big thank you to all the colleagues and friends we have worked with this year, from Brussels-based representatives to employees in SMEs in our regions. And last a special thanks and appreciation for this year's board members and the network's staff, who in multiple ways have become our partners. Together we make Vanguard Initiative a success, and let's continue to do so!

Eddy van Hijum – Regional Minister of Economy, Finance and European affairs

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Task Groups' Activities



POLICY INFLUENCING

The main target of the TG is to influence the EU policy agenda by providing policy input material and organising policy influencing activities in those areas of policy that are most important to creating the conditions that enable our pilot projects to flourish. Several activities were developed along those lines in 2021, with the new European priorities as focal points.

Collaborations with other networks have been pursued with a view to develop joint positions and mutually reinforcing activities.

Continued attention has been devoted to the co-design process of the new instrument for Interregional Innovation Investment (I3). The Commission published the summary of the public consultation on I3 in March 2021. The VI contribution, that was submitted jointly with several other networks in September 2020, was well reflected in the report, and VI's input were taken seriously into consideration.

An internal workshop was organised on the 30th of March with a view to gather further input from the pilots and VI regions. On that basis, a new input paper was elaborated and sent to the Commission, jointly with EARTO. In addition, the VI has been selected as member of the I3 expert group which will assist the EC in the I3 work programme preparation. Wim de Kinderen, from South Netherlands, is the VI representative in the expert group, with Giacomo Copani from Lombardy as alternate.



Interregional Innovation Investments (I3) – Complementary insights

The signatories, submitted in September 2020, with other networks, a comprehensive contribution¹ to the public consultation launched by the EC. On the basis of the last public updates about the design of the I3 tool and our recent experience of the VI pilots², we would like to share some suggestions and highlight a few points of concern.

The first meeting took place on the 15th of June, where draft work programme 2021-2022 was discussed. Written comments were prepared on this draft and sent to the EC. The preparatory work is managed within a dedicated subgroup of the PITG, supporting the VI representative in his assignment.

A specific input was also delivered about the new Interreg Europe programme, in particular regarding its synergies with I3.

Another key EU priority for VI is the renewed EU Industrial strategy. In that context, VI has also been selected by the European Commission as member of Industrial Forum. Ms Cristina Oyon from the Basque Country is the VI representative in this expert group. This is a strong acknowledgement for our network, recognised as relevant partner on the EU industrial policy. The quick-off meeting took place on the 1st of February 2021 and a second meeting on the 29th of June 2021. The Policy Influencing TG is supporting the VI representative for its active participation in this Forum.



Task Groups' Activities

The VI is represented in different the sub-groups, dealing with different topics such as cross-border and cross-ecosystem investment needs, transition pathways, strategic dependencies, or the uptake of advanced manufacturing processes by EU industry.

The PITG is also supporting the network for the organisation of the HLDM and APM, in particular for the preparation of policy sessions. It is also involved in the S3 2.0 study launched during the summer and participated in exchanges with the JRC and CoR about the new S4 concept. VI finally started some exchanges with ENoLL and EARTO about technology infrastructures.

VANGUARD PILOT MONITORING

The Vanguard Pilot Monitoring (VPM) Task Group acts as a coordination mechanism providing horizontal support and oversight to the ongoing (more vertical) activities of the current VI Pilot Projects.

VPM activities can be distinguished between those having a more internal dimension, and those with a predominantly external orientation. On the internal side, VPM serves as a forum for mutual learning between co-lead regions who report on the progress of their Pilot Projects – via regular updates and Pilot specific more detailed “deep dives” – and on the difficulties, they face in the further development.

The Task Group has optimized communication between the association and the Pilot Projects to ensure all formalities (reporting, payments, etc.) are organized smoothly. In terms of reporting, VPM members have delivered an improved set of common KPIs and deliverables within a more reader-friendly reporting template, which is being applied to Action Plans, Mid-Term Reports as well as Final Reports. A special point of attention has been the improvement of the communication with the regions' representatives, aiming at providing a better insight into the participation of the regions' stakeholders in the Pilots' activities.

Members of the Task Group have contributed to the ‘Call for new Pilot Projects’, enabled by the renewed “VI Shared Funding Model” which was approved before. Resulting from that call, the two newly approved Pilot Projects on “Artificial Intelligence” and “Smart Health” have been supported by VPM in their integration in Vanguard.

To support VI regions' representatives to reach out to their companies and knowledge institutes, VPM in close collaboration with TG Communication has stimulated all Pilot Projects to publish flyers briefly describing the content, both on a Pilot level as well as on the level of the individual DemoCases. Equally video footage was delivered to TG Communication.

VPM plays a prominent role in the Vanguard Initiative's overall activities on funding, both internally (looking at possibilities offered by the VI regions themselves) and externally (looking at possibilities offered by third parties, predominantly the European Institutions).



Task Groups' Activities

The work related to the mobilisation and creation of financial solutions to support the Pilots and the implementation of their company-oriented activities and demonstration facilities' investment plans is key. This ever increasingly important horizontal issue for the Pilots, which needs to be completely aligned with the real needs of the Pilots, has taken much of VPM's attention in the last year and has brought the Task Group to an even closer collaboration with TG Cofunding and Cofinancing and TG Policy Influencing.

Following the participation of 4 VI Pilot Projects in DG REGIO's 'Pilot Actions for Interregional Cooperation', VPM has contributed, in support of TG Cofunding&Cofinancing, to the organization in November 2020 of a dedicated meeting between the 3D Printing Pilot Project and funding experts from a series of VI regions, looking at regional and interregional support possibilities for 3DP business use cases.

The organization of similar sessions with other VI Pilot Projects is being prepared.

Advancing the design and set-up of demand-based financial solutions by Vanguard Initiative regions themselves, delivering the basic promise of VI towards the Pilot Projects to "give access to regional innovation funds", TGs VPM and Cofunding&Cofinancing have, together and in September 2021, submitted a proposal on the recruitment of an internal "Interregional Funding Expert" in the context of the "VI financial reserve" call for ideas.

Looking to external funding possibilities, VPM and its Pilot Projects have collaborated with TG Policy Influencing on the new EU funding programme "Interregional Innovation Funding (I3)", by contributing to VI's position papers and by supporting VI's representative in the EC's dedicated i3 Expert Group.

Last but not least, after having put the topic of "collaboration with European Partnerships" on VI's agenda in early 2019, VPM has supported the assigned Board Members in their talks with EFFRA-Made in Europe Partnership towards a MoU between the associations, and has initiated steps towards similar discussions with the European Partnerships "Processes4Planet" and "Data, AI and Robotics".

Following the Covid19 crisis the activities of the EC's Smart Specialisation Platform, during which VPM is ensuring VI Pilots so speak with one voice and present ourselves as a clear group in order to be and remain a core player in this "structural dialogue" with the European Commission, have been at a low level recently.

Lead: South Netherlands

Pilot Lead Members: Auvergne Rhône-Alpes, Baden-Württemberg, Basque Country, Catalonia, East Netherlands, Emilia Romagna, Flanders, Lombardy, Lower Austria, Norte, Randstad Region, Scotland, Skane, South Netherlands

Additional Members: Lower Austria, Navarra, North-East Romania, East&West Slovenia, Wales, Wallonia

Meetings 2020 (Nov-Dec): 1

Meetings 2021 (January-October): 7



Task Groups' Activities

FUTURE OF VANGUARD

FVTG is hasn't been maybe formally meeting a lot lately; however, it has been active in many ways. Everything that goes with more efficient VI, better governed VI, more productive VI, delivering VI all in favour of the core values of VI FVTG has been there. Since the Chair of FVTG is also a VI Board member a lot of communication went through there; however, all ideas, suggestions and concrete proposals for improvement were also first discussed and later adopted with all members via VPM, NRM, APL and GA meetings. FVTG has been pushing and has also concretely prepared a cross-cutting call and a new pilots' call in 2020, both being in the very core of the Vanguard initiative values and aims.

Before that and later as well new Share Funding Model has been put in real life. There has been also a special survey for VI members prepared and communicated to VI members through NRM in 2020 and again in 2021. This survey should be fine-tuned in 2021 together with the VI Chair East Netherland and all VI members going along with an idea of having a long-term strategic plan for VI. A survey will be then sent out to members to fill it in order to help VI to take the right path and pace in the future. We all want VI to be more efficient and successful also in a concrete way as possible.

FUNDING AND FINANCING

Following the decision to anchor the analysis of the regional funding and financing opportunities to the concrete needs of VI Pilots, and the steps implemented last year, namely the work developed with the selected VI Pilots - 3DP, ESM, and Bio-economy – and the first workshop with regions, targeting the 3DP pilot, in 2021 the main focus was to learn from that experience and fine-tune the process before applying it to the other pilots, taking also advantage from the fact that they were still developing the necessary information.

From the report produced by the 3DP Pilot and also the interactions with several stakeholders, it became clear that there are already programmes and funding instruments, at the regional level, to support several activities relevant for the pilots (mainly in layer 3), and also some concrete examples of interregional collaboration. But, when it comes to investments in layers 1 and 2 (linked with the creation of the pilots and the support to their running costs) and, particularly, to the support of interregional projects and activities, the conclusion was that there is still a lot to be done. And the same also applies to synergies between (inter)regional and European funding.



Task Groups' Activities

Since the capability to carry out large-scale interregional demonstration projects, financially supported with regional funds, ideally reinforced with other funding existing at the European level, is one of the VI's main Unique Selling Points, it's important to address this challenge, by developing innovative and feasible solutions that can be implemented under this new Framework Programme. This objective calls for a combination of political commitment and solid technical expertise and demands a working effort that is not compatible with the resources and dedication possible to mobilize in the context of the Working Groups. Considering this, the WGs VPM and Funding & Financing prepared and presented a joint proposal to the VI Call for Ideas, to contract dedicated resources aiming at “elaborating structural system(s) financially supporting innovation collaboration projects between economic stakeholders based in different VI regions”.

We believe that such an activity will improve the framework conditions for real pilot implementation and exploitation and interregional cooperation, contributing to the fulfillment of VI's main purpose. Complementary, it will also, once more, put VI in a leading position in what concerns the development and implementation of innovative solutions for RDI promotion and support, both at the European and at the regional level, strengthening its position as an inspiring initiative.



Pilot Activities

ADMA ENERGY

Led by Scotland and the Basque Country, the VI ADMA Energy Pilot brings together seven European regions, including Asturias, Dalarna, Emilia-Romagna, Flanders, and Lombardy. These regions host several stakeholders with particular expertise in this field, including cluster organisations, business networks, enterprise and investment agencies, research and technology organisations, universities, and above all a large, established industrial and advanced manufacturing base in marine renewable energy technologies and wider offshore energy and subsea applications.

The Pilot has developed clear actions for 2021 as outlined in the 2021 Action Plan to facilitate demo case development, support communication and networking activities for cross-pollination, and recruit new regions. In the period of October 2020 to September 2021, the Pilot focused on developing and progressing the ambitious 2021 Action Plan fostering development around these actions in five meetings with the partners. These meetings have served as pivotal moments to initiate and execute the key actions within the pilot as well as track the progress of the Action Plan implementation.

Demo cases that are currently being developed: 'Power Transfer in the Sea' led by Scotland (UK), 'Next generation materials' led by Asturias (ES), and 'Joining of large components in harsh environments' led by Flanders (BE). The Power Transfer in the Sea demo-case submitted a proposal to the H2020 Green Deal Call (unfortunately unsuccessful). Partners are now exploring a series of follow-up actions to submit proposals under Horizon Europe or to access other sources of funding, both public and private. The 'Next generation materials' demo case is forming a consortium of companies and technological centres. A consultant company has been hired to support services for the development of the proposal. The initial phases of the proposed demo case on 'Joining of large-scale components' are underway, relying on the consortium lead SIRRIS' expertise to steer the content and any proposal development, as well as interest from the consortium. In addition, discussions have taken place on the potential to initiate a new demo case based on a previous feasibility report on 'Exploring Decommissioning and Valorisation of Oil & Gas rigs in Sustainable and Circular Economy Frameworks' led by Emilia Romagna.

During ADMA Energy partner meetings the pilot has closely followed the development and launch of Horizon Europe as well as the Interregional Innovation Investments (I3) instrument. A targeted presentation by the European Innovation Council (EIC) about funding opportunities specific to the ADMA Energy demo cases was organised.

Networking and communication activities have included the presentation of the OPIN project, in which several ADMA Energy partners are involved, the launch of the new ADMA Energy Pilot page, as well as the organisation of a B2B matchmaking in Ravenna in September 2021, together with a conference on the ADMA Energy Pilot that will take place on November 9th, 2021.



Pilot Activities

The ADMA Energy partnership also works in close cooperation with the Marine Renewable Energy Partnership of the Thematic Smart Specialisation Platform on Energy. In July 2021 the partnership participated in the Online S3P Steering Committee & Matchmaking event. Meetings have also played a key role in the initiation of the regional recruitment objective, which is underway. This work has been continuously supported through external administrative support for Pilot meetings and activities from IDEA Consult (after a competitive tendering process through Public Contracts Scotland).

ARTIFICIAL INTELLIGENCE

AI Pilot officially started its activities in 2021 and organised its first public kick-off meeting on 17.05.2021. The Meeting was held online and saw the participation of more than 100 attendees.

During its first months of activities, the Pilot aimed at laying the groundwork to execute on its ambition to “sustain and stimulate the demonstration and deployment of AI Technologies focusing on SMEs as main beneficiaries as well as technology providers.”

The main achievements of the Pilot in these first months were:

- Strengthen the AI DEMO LAB GRID Demo Case, starting definition of the Shared Services portfolio, by means of the work of all the involved laboratories, and in the identification of cooperation, patterns to create best practices and first use cases.
- Officially started (July 2021) the second Demo Case AI for Resource Efficiency in Production. The Democase, coordinated by DIFT and supported by Steinbeis, aims at supporting SMEs and companies in the uptake of AI technologies in the definition of new efficient work paths, the design of new efficient processes, with a specific focus on post-pandemia re-starting activities. The Demo Case is currently developing its offerings and seeking partners.
- Set up collaboration- and technical infrastructure of the Pilot, which helped to map and identify relevant actors and stakeholders in each of the regions involved
- Appoint the Technical-Scientific Committee of the Pilot, organizing the first Steering Committee meeting in July. Besides these activities, the AI Pilot Management Team also took care of communicating the Pilot’s activities and strategic objectives to regions and stakeholders within and beyond the Pilot’s perimeter.

Also, to ensure the sustainability of the Pilot and to expand its scope, the AI Pilot promoted a round of workshops to agree on possible joint proposals to submit (as a Pilot and in cooperation with other pilots/activities) in different framework programmes such as Horizon Europe and I3.



Pilot Activities

In particular, some HE CSA calls were identified as of interest and promising to generate potential value for the Pilot, its participants, and VI as such. Approaching the release of the calls, the AI Pilot is working on gathering interests and ideas from stakeholders in order to set up a wide-scope, strong and reliable consortium to elaborate a proposal for the identified calls. To position strategically VI in the broader AI and data economy ecosystem, AI Pilot was put in charge to conduct negotiations with DAIRO/ADRA. This interaction will bring to the signature of an MoU between the VI and the ADRA to define the perimeter of cooperation in further activities, in a similar way as already done between MadeInEurope and The VI. Preliminary talks are ongoing at the time of publishing this report.

BIOECONOMY

Led by the Randstad and Lombardy regions, the Bioeconomy Pilot sets up interregional value chains in the innovative and sustainable use of renewable resources by promoting the speed up of demo projects in green chemistry, biofuels, and biomaterials sectors to the market.

Driven by the commitment of nineteen regions, the Bioeconomy Pilot brings together four demo-cases embracing twelve use-cases (TRL 7-8), focused on the industrial production and commercialisation of chemicals (e.g. coatings, adhesives, glues, lubricants), biomaterials (e.g. resins, plasticizer, fibres, bitumen, biopolymers) and biofuels (Bio-LNG) from the valorisation of circular bio-based raw materials.

The Pilot's demo cases are:

- Bioaromatics, led by Flanders;
- Lignocellulosic biorefinery, led by Randstad;
- Liquefied Bio-methane, led by Emilia-Romagna and Lombardy;
- Biopolymers, led by Lombardy.

During 2021, the Pilot devoted greater effort to validate the technical feasibility and the economic profitability of demo cases products (resins, fibres, polymers, biofuels) obtained from raw materials such as lignin pulp&paper streams, agricultural by-products as promising alternatives to fossil ones. The following achievements provide an overview of 2021 activities:

- Inauguration of a new large-industry phase of production 50 tons/year of bio-aromatics for several applications in the building sector (e.g. adhesives, insulation materials, coatings, plastic composites, flame retardants).
- Creation of the Relement BV company, a TNO spin-off, produces and commercialises bio-aromatics at the Biorizon Shared Research Center (Randstad).
- Validation at industrial scale of food packaging production of over 40 Kg / h by converting from agro-industry waste through biorefining and biotreatment guided by the BioComposite Center (Wales).



Pilot Activities

EFFICIENT AND SUSTAINABLE MANUFACTURING

Since its start in 2014, ESM Pilot is working on conceiving and developing a European networked infrastructure of pilot plants in key areas, dedicated to advanced manufacturing.

In 2021, ESM activities will be managed in continuity with the previous years, focusing specifically on the development of demo-case projects and on the consolidation of use-cases, enlarging the industrial participation and commitment.

The main achievements of 2021 could be summarized as follow:

- Consolidation of ESM demo-cases and related use-cases
- After the experience with De-and Remanufacturing demo-case, Smart Plastics demo-case was successful in the application of TAF service and is receiving targeted business support to boost demo-case implementation. Furthermore, De-and Remanufacturing and Digital Transformation demo-cases are exploiting H2020 projects to continue their activities on specific use-cases, in particular FiberEUse and Care-Service (finishing in 2021), DigiPrime, and AIREGIO projects.
- Fostering new demo-cases or use-cases initiatives
- ESM continuously monitors and promotes the generation of new demo-cases/use-cases ideas based on the interest and competencies of the Regions in the network. This action ensures that the topics targeted by the pilot are fully aligned with the current needs and the priorities of stakeholders, building a critical mass from at least 3/4 Vanguard Regions. In particular, De- and Remanufacturing demo-case is working on the introduction of a new use-case on textile recycling.
- Finalisation and exploitation of ESM innovation and industrial uptake inter-regional roadmap
- A strategic roadmap collecting priorities for the development and implementation of demo-case projects in terms of Areas of applications and Facilities Networks is under discussion.
- Promotion and rationalisation of the participation in other EU initiatives.
- ESM continues its activities in the framework of S3Platform for Industrial Modernisation coordination, its own partnership, and collaborates with other established partnerships which are addressing synergic or complementary goals (i.e. AI&HMI, Advanced Material for Batteries, Wireless ICT...). In addition, ESM continues fostering the cooperation between Vanguard Initiative and Made in Europe and Process4Planet Partnerships supporting the development of the MoU and actively involving the Pilot in the collaboration. Finally, considering the evolution in the framework of the European Digital Innovation Hub initiative, ESM through its regional representatives is monitoring the set-up of EDIH and promotes effective connections and cooperation with these organisations.
- Ensure efficient and effective governance and outreach.
- ESM facilitates the dialogue among new interested Regions and demo-case coordinators for their formal inclusion in demo-cases network.



Pilot Activities

HIGH-PERFORMANCE PRODUCTION THROUGH 3D PTINTING

Over the year 2021, the 3DP Pilot generated substantial industry-driven outcomes, which are strengthening the AM value chain.

The 3DP Pilot enabled the implementation of 9 SMEs-led cross-regional demonstration projects supported by EU grants (total amount of grants [1] secured: 375K €) and involving, in each project, at least two facility centres located in two distinct countries. These projects are delivering positive and promising results, towards smarter and greener solutions being developed for SMEs located in Members Regions.

In view of timely addressing other industrial needs and generating projects, the 3DP Pilot developed and successfully implemented structural matchmaking tools and mechanisms, which are made available to actors from the 29 members-regions. Doing so, the 3DP Pilot is directly enabling impacts-oriented projects and activities that would not have taken place without its existence:

- A matchmaking tool was created in 2021 and enables the generation of AM-based innovation projects, connecting all actors of the AM Value Chain towards the implementation of innovation projects. This ambitious matchmaking platform will gradually be connected to other technological fields, to avoid silos.
- The ‘3DP Pilot Pitching Sessions’ (during which partners can pitch projects ideas to find complementary expertise, partners, and clients) organised in 2021 were highly successful. In total, 5 new projects ideas were pitched in 2021 and met with high industrial and cross-regional interests. Regarding projects pitched in end-2020, they quickly delivered tangible results in 2021:
 - a. The generation of bilateral, privately funded activities and connections between companies
 - b. Building expertise and network towards submitting proposals for Horizon Europe Calls and Cascade funding opportunities.

Beyond the aforementioned specific outcomes, the structural projects (‘demo cases’) implemented are progressing in terms of 1) strengthening the networks of expertise and 2) delivering of SMEs-impacts:

[1] The Source of Grants is the [3DP Pan EU Project](#), a DG GROW-funded project. This project followed a preparatory action of the European Parliament, directly launched based on 3DP Pilot achievements and needs. The Open Call aimed at funding 10 SMEs-led demonstration projects. For a total of 400k €, i.e. 40k€ max per project). This open call was open to all European countries (i.e. not restricted to Vanguard Regions). Among the 10 proposals selected for funding, 9 proposals are led by an SME located in a 3DP Pilot member region. In total 360k € grants are therefore directed to Vanguard 3DP Pilot Members regions/projects. In addition to this, in one project, 15k€ of regional funding (East-Netherlands) complement the EU grant.



Pilot Activities

- The networks of expertise are strengthened in all demo cases, with more regions and organisations joining the pilot [2]. In terms of knowledge building, 3 analytical reports [3], directly related to 3DP Pilot Demo Cases were drafted in the context of the ATI project in 2021.
- A whole series of activities (Webinar, Meetings, Matchmaking online tools, Electronic Leaflets) focusing on providing information on funding opportunities were highly attended (more than 110 participants during Webinars) and successfully implemented: as a direct result of these activities, more than 8 distinct proposals for Horizon Europe IAs (or RIAs) are being submitted/prepared. In addition, one Cornet proposal, IRA SME one proposal for Trinity Open Call have been submitted. One TAF proposal has been submitted (and accepted: 30 expert days).

NEW NANO-ENABLED PRODUCTS

The pilot project aims to connect and further develop an open and business-driven facility for the pilot production of nano-enabled materials, systems, and products. The pilot is led by the regions of the Skåne region and Emilia Romagna. In 2021, the activities of the pilot are managed in continuity with the previous years, focusing to progress its three active demo cases, from the Learn and Connect phase into the Demonstrate and Commercialisation phase. In addition, the development of three new demo cases took place, with a focus on the Learn and Connect phase, and the identification of interested regional actors to build interregional demo cases.

Two demo cases, the NeMs4Bio demo case (led by Flanders & East Netherlands) and the nanowires demo-case (led by Skåne) have obtained TAF support to develop an interregional business plan. The TAF support should result in a clear unique value proposition, a market analysis, and the development of an interregional business model. The NeMs4Bio demo case aims to develop integrated and packaged functional modules that fit into devices, and not isolated pieces of technology. A workshop has been set up to develop the supply chain and value chain concept behind the NEMS4BIO platform (synergies, drivers, motivation, caveats), based on a select set of use cases.

[2] Three additional regions have joined in 2021 (32 in total) and the number of organisations keeps increasing (more than 120 active organisations).

[3] See [report](#) focused on the Hybrid Components demo case, see [report](#) focusing on the '3D printing for the machine tool industry' (transversal to several demo cases), and see [report](#) focusing on the 'Structural Integrated Electronics' demo case.



Pilot Activities

The nanowires demo case aims to build a new Swedish node in the European ecosystem for nanotechnology based material, process and component industrialization by creating a NanoPilot Manufacturing Center (a national testbed for scale up of nano materials and technology turbocharging nanotechnology to the market). A workshop was organized to align the interest of Swedish stakeholders in the area of nanomaterials.

The Printed Electronics on metallic 3D objects (Shapetronics) democase (led by Wallonia) is working on the development of technologies to integrate functionally printed structures directly onto 3D objects. It aims to develop a technology platform dedicated to benchmarking and exploring new printed fabrication process (subtractive and additive methods) to integrate electronics on large-area curved objects, and recently applied for funding.

During the Open Steering Committee on 1st June 2021, the three new demo cases presented their general objectives and the main challenges they are facing. Specific requests for collaboration have been formulated and distributed among VI regions in order to explore new cross-regional collaborations.

The Structural Health Monitoring demo case (led by Navarra) aims to integrate flexible micro/nanoelectronics within composite parts, during the manufacturing process. The demo aims to overcome the limitations of size, derived from standard mounting technologies, through digital printing and innovative mounting approaches, and to create a network of manufacturers of composite materials, nanomaterials, and printed electronics companies, to establish a workflow for the fabrication of new products.

The Flip-Chip assembly for Indium Phosphide PICs demo case (led by East Netherlands) aims to develop and demonstrate a new flip-chip technology that enables the integration of electronics and photonics for InP (Indium Phosphide) chips, under conditions of high IO count, fine pitch and suited for high data rate. They are looking for collaboration with OEM-ers, end-user, OSAT's and research centres that are interested in adding to the European integrated photonics value chain.

The MEMS for nano-analytiX demo-case (led by Emilia-Romagna) aims to deploy Micro-Electro-Mechanical Systems (MEMS) technology for the integration of analytical functional nanomaterials in miniaturized innovative sensing systems. They want to extend the use of the proposed technology to other partners interested in adopting MEMS technology and nanomaterials inside their R&D activities or product lines, fostering wider use and higher impact of the proposed MEMS/NEMS devices.

A contract with RINA Consult Spa was signed to provide specific support to the three new demo-cases described above.

In October 2021, a steering committee will be organised to discuss the main progress and bottlenecks encountered. In November 2021, a plenary meeting will take place to attract additional stakeholders to the Vanguard Nano pilot.



Pilot Activities

SMART HEALTH

The Smart Health pilot is one of the two new pilot projects that started in 2021. It is led by Flanders, East Netherlands, and South Netherlands. The new pilot aims to realise the potential of personalised medicine through interregional cooperation. The partner regions already established solid ecosystems combining biomedical, technological, and data-driven experience. By bringing these ecosystems together a higher added value will be reached and boost the implementation of personalised medicine; it will realise an innovative approach for health and care in Europe.

On 14 April 2021, the pilot was officially launched during the kick-off meeting. More than 100 participants gathered online to attend the event. The attendees were welcomed by the representatives of the leading regions and learned about the aims and focus points of the Smart Health pilot. They were inspired by different demo cases, showcasing the perspective of smart health. Regions were invited to express their interest in the pilot by contacting the coordinators to build and set up dream teams. Besides the coordinating regions, all nine regions that were part of the smart specialisation partnership on personalised medicine (S3P4PM) decided to become a member of the Smart Health pilot. Since the kick-off meeting, four additional regions joined the pilot as well. Group GAC was appointed as a consultant and will assist the pilot from September onwards.

Updating scoping note

During the first year of the pilot, the focus lies on updating the scoping note that was created for S3P4PM in 2018. A thorough inquiry was carried out to identify additional topics of interest that can be used as inspiration for novel demo cases. The input was summarised in four pillars (data and digital technology; converging technologies; preventive health; sustainability of health) under which 15 broad topics were included. Writing of the scoping note is currently ongoing and will be finished by the end of the year.

Demo cases

The demo cases that were started under S3P4PM will be continued under the Vanguard Initiative Smart Health pilot. We Are, formerly known as the Personals Data Management Platform, works on providing a personal digital safe and control over it to each individual citizen. The collective of this data organized in a citizen-centric governance model provides currently non-existing possibilities for innovation and an ethically correct marketplace for personalized products and services. Topfit is a strategic open innovation program comprising a wide range of partners such as care institutions, companies, insurance companies, municipalities, GGD's, universities of applied sciences, and vocational education.



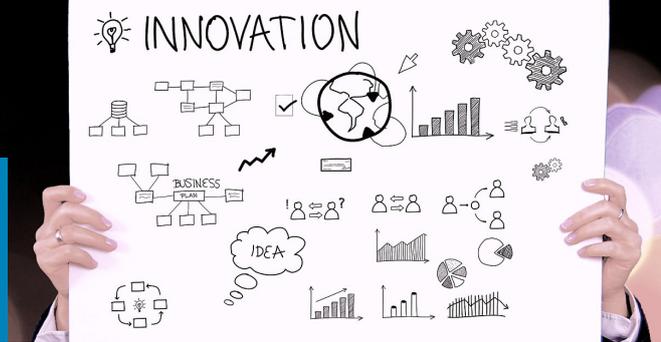
Pilot Activities

TopFit combines (medical) technology, nutrition and health and citizen science approach, aiming to create two more healthy and active life years for citizens. A first consortium has been established on the prevention of diabetes type II.

Mobile health (r)evolution aims to generate value to users and society by offering elderly chronic patients continuous, personalised health support through mobile health management for better self-management of chronic diseases and quality of life.

Additionally, a new demo case was started in 2021. The Inter-regional platform for new radiotracers development in personalized medicine (TRACE-MED) wants to set up a European radiopharmaceutical (RP) eco-system, a consortium platform of experienced partners that covers the entire value chain of the RP industry, from research & development to production, by breaking down existing silo's and fostering coordination which will reduce time and improve efficiencies of the whole RP research chain creating better results.

Vanguard Activities



PROJECT PARTICIPATION

European Tender Application- Operation of the Circular Cities and Regions Initiative's Coordination and Support Office (CCRI-CSO)

In March 2020, the VI has submitted an EU tender application as part of a consortium led by Ernst and Young, and including several key organisations from VI member regions¹. The specific subject of this contract is the provision of the Circular Cities and Regions Initiative's Coordination and Support Office (CCRI-CSO) function, aiming at providing coordination and advisory support to cities, regions and territorial clusters' transition towards a circular economy. Activities aimed at supporting the setting-up and to provide initial support to the launch of the CSO, the core platform for the implementation of the CCRI, helping it to achieve its goals by significantly improving the diffusion and implementation of circularity at local, urban & regional levels, so that this major transition will generate projects and produce concrete and efficient innovative solutions on sustainability (environmental impact), regeneration (economic impact), inclusion (social impact), and justness (transitional impact). More information is available [here](#).

HORIZON-CL4-2021-RESILIENCE-01-29: 'Innovate to Transform' 'support for SME'S sustainability transition (CSA)

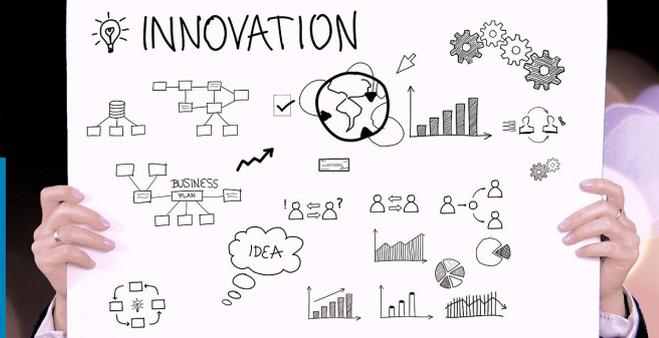
The VI submitted an application as part of a consortium for the TIARE project, which aims at creating and connecting supportive innovation ecosystems at regional level to reinforce the resilience of SMEs operating in the energy-intensive industry (EII) sectors (see figure 1), looking at Social-Ecological-Technological Systems (SETS) in the medium- and long-term and using the perspective of anticipatory governance.

TIARE aims to reach directly and indirectly up to 1500 SMEs thanks to the project partners and the involvement of up to 15 cluster organizations through the partners' networks, linked to the energy-intensive industry sectors. We expect to fund at least 100 innovation projects with a total budget of 2.5MEuro We plan to hold 3 open innovation initiatives; 3 open events and we will start communication channels to cooperate with 15 clusters and 10 regional administrations.



Figure 1: TIARE's goals

Vanguard Activities



MADE IN EUROPE PARTNERSHIP

2021 saw the start of the negotiations (led by Lombardy and the Basque Country) between VI and the European Factories of the Future Research Association (EFFRA) regarding their cooperation agreement for the implementation of the Made in Europe (MiE) Partnership.

The Made in Europe (MiE) Partnership will develop under Horizon Europe and will be jointly implemented by the European Commission and by EFFRA. MiE will create a European industry-led programme in R&I to drive the twin ecological and digital transition by launching hundreds of market-oriented cross-border projects bringing together the actors from manufacturing and relevant European industrial ecosystems. Made in Europe will also serve as a platform for national and regional manufacturing technology initiatives creating economies of scale, common understanding and alignment of objectives and priorities.

The European Commission's interest in EFFRA's developing a strategic partnership with VI is triggered by the need to maximise the economic and societal impact of Made in Europe by ensuring the dissemination and take-up of research results across our network of strong manufacturing regions and, at the same time, bringing them one step closer to commercialization. Besides, both EFFRA and VI share the belief that collaboration and synergies between funding instruments are the key drivers for growth, innovation and collaboration at regional, national and European level.

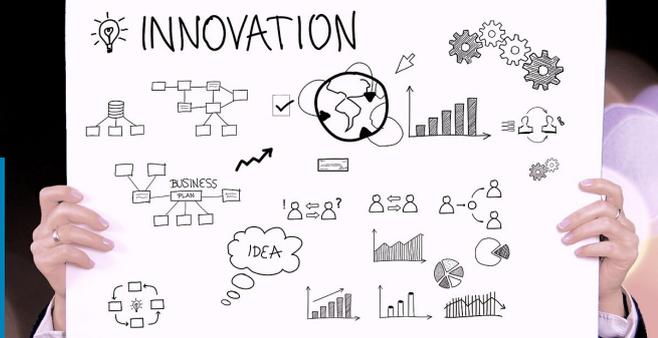
The cooperation agreement between both organizations will allow them to:

- Work together to identify synergies between regional, national or European funding sources as well as to identify complementary activities to Made in Europe funded projects that could be assessed under the applicable regional framework.
- Ensure a regular dialogue by involving VI in the Made in Europe Advisory Bodies and Working Groups.
- Carry out dissemination and awareness-raising activities concerning MiE developments and opportunities.
- Implement other activities jointly agreed by both associations (workshops, webinars, leaflets, etc.)

Regarding the implementation of the cooperation agreement, a joint task force co-chaired by EFFRA and VI will be set up in order to define, develop and assess a joint annual action plan. The Boards of both organizations will be in charge of regularly monitoring the implementation of the action plan jointly agreed.

The strategic cooperation agreement between MiE and VI signed on November 25th will reinforce the European R&I manufacturing ecosystem, accelerating the market exploitation of R&I activities, bridging the innovation gap from Technology Readiness Level (TRL) 4-5 to TRL 9 and widening its geographical coverage.

Vanguard Activities



STUDY ON VI MEMBER REGIONS S3 2.0 STRATEGIES

Vanguard Initiative Network Annual Plan 2021 stated that VI would remain at the forefront of stimulating interregional innovation' for an overhaul of the EU's industrial innovation framework with all levels of the multi-level governance system working together to achieve this, and with S3 at the core of the effort. Moreover, the Network committed to enabling all member regions to actively contribute to VI and give an impulse to their innovation strengths (S3) by participating in the different pilots and the network as a whole. Strengthening relationships with stakeholders from industry, academia, and government and investing in communication.

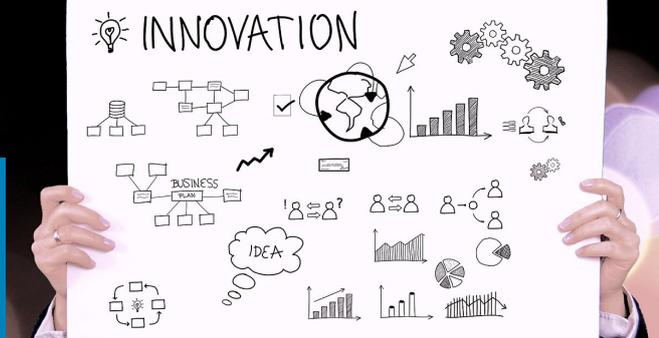
The Vanguard Initiative is more than the sum of its regional innovation strategies, but the individual S3s are the point of departure of any effort towards identifying cross-regional opportunities that will mutually reinforce regional eco-systems. With the start of the new programming period 2021-2027, all regions have recently revised (or are in the process of revising) their regional S3s. Many changes have been (or are being) integrated into the S3s to reflect recent policy shifts: such as a stronger focus on the green and digital transitions, recovery plans devoting specific attention to 'resilience', a wider definition of innovation including more non-technological innovation, more attention to skills and human capital, etc.

In June 2021, Vanguard Initiative launched a study for a comparative analysis of the new Smart Specialisation Strategies (S3) 2021-2027 recently adopted or in the process of being finalised by our Regions. The aim of the study is to inform all VI members about the process (EDP), to provide an overview of the new priorities and trends amongst the revised S3s, and to help VI Regions develop their outward-looking perspective and identify further collaboration opportunities within the Network.

More precisely, the objectives of the study, to be presented in the 2021 Annual Political Meeting on November 25 are the following ones:

- To inform all VI members about the process, about how far VI Regions currently are with the revision of their S3, about the difficulties encountered and how they have been solved;
- To provide an overview of the new priorities and trends amongst the revised S3s, in particular the ones related to the core-business of Vanguard, i.e. speeding up technology deployment and industrial modernisation through cross-regional collaboration;
- Based on the above, to help VI regions develop their outward-looking perspective and identify collaboration opportunities within the Network;
- To foster consensus building amongst VI regions with regard to value chain development and practical modalities for interregional collaboration (including e.g. consensus on funding instruments, lack thereof, and/or needs that they should be covering).

Vanguard Activities



COMMUNICATION AND EVENTS

To support the Vanguard Initiative's presence as well as strengthen the impact and visibility of the Vanguard Initiative's work in its member regions, in 2021 three regional conferences took place digitally:

- **Vanguard Initiative Regional Conference 'New growth of industrial regions through Smart Specialization' organised by Norte and Galicia regions**

The Galicia-Norte Portugal Intelligent Specialization Strategy (RIS3T), the first European cross-border RIS3 was showcased, while activities of the Vanguard Initiative provided further concrete examples of inter-regional collaboration towards the creation of European industrial value chains. Discussions allowed to reflect on the importance of a coordinated response to shared challenges that, in the context of innovation policies, can be addressed together more effectively and efficiently, mobilizing new initiatives and projects, and increasing the application of EU funds at the European level.

- **Vanguard Initiative Regional Conference 'Connecting innovation strengths across regions: a place-based approach to stronger European industries' organised by regions of Randstad and Wales**

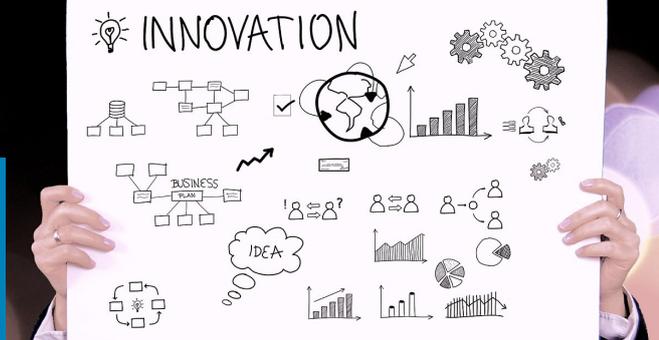
The event focused on Wales' and Randstad's collaborative work on aligning smart specialisation approaches, internationalisation, and regional innovation support, with a series of presentations and case studies, including a 'virtual visit' to the Compound Semiconductor Foundry in Newport, Wales.

- **Regional Conference on hydrogen value chains organised by Baden-Württemberg**

The BW VI regional conference, foreseen for November 2021, aimed at three areas: 1) to provide (regional) actors with an opportunity to better understand the value of the network, 2) to explore options to participate in the network's pilot and demo case activities, and 3) to discuss and exchange on exciting new policy areas with a focus on hydrogen value chains. The conference will additionally provide added value to other VI regions by presenting best practices, already existing interregional projects on hydrogen, and providing concrete examples of how and where the VI could become active in the future, as there are several regions that expressed an interest in Vanguard actively engaged on hydrogen.

In addition, a Vanguard Academy on the 'Comprehensive approach to synergies between Horizon Europe and ESIF: An analysis of different types of synergies' was held in June 2021. The workshop provided a unique occasion to reflect and discuss the synergies between Horizon Europe and the European Structural and Investment Funds (ESIF). The conference also provided the opportunity to ask the Commission question about the practical aspects of the synergies between Horizon Europe and ESIF. Finally, Vanguard Initiative has committed to two additional projects:

Vanguard Activities



- **Science Meets Regions - Call for expression of interest: advancing evidence-informed policy at the regional and local level through co-creation and networking**

Under the leadership of East Netherlands, and the active participation of Lower Austria and Northeast Romania, the Vanguard Initiative has submitted an expression of interest in the “Science meets Regions” programme.

In the framework of “Science Meets Regions” and with the support of the Joint Research Centre (JRC), The VI consortium, wants to deliver innovation camps and participatory events, the Digital Transition, and the recovery from the COVID-19 pandemic. The VI Smart Health Pilot will be instrumental in the delivery of the activities.

The selected participants can receive financial, methodological, and scientific support under the scheme, towards organization of the event(s) including preparation, logistics, communication, and facilitation costs.

More information is available [here](#).

- **European Week of Regions and Cities 2021 – Connecting Regional Innovation Ecosystems: Interregional Value Chains to spur the Digital transition**

The seminar showcased how connecting regional innovation ecosystems to develop interregional value chains, is paramount to achieving the Digital Transition. By highlighting VI best practices such as the recently launched Artificial Intelligence and Smart Health Pilot, this workshop was an opportunity to learn how the VI regional collaboration is providing a line of action to foster interregional value chains, by drawing on the existing strengths of VI-member regional ecosystems and remaining open to pulling in new, less well-represented actors or territories.

More information is available [here](#).