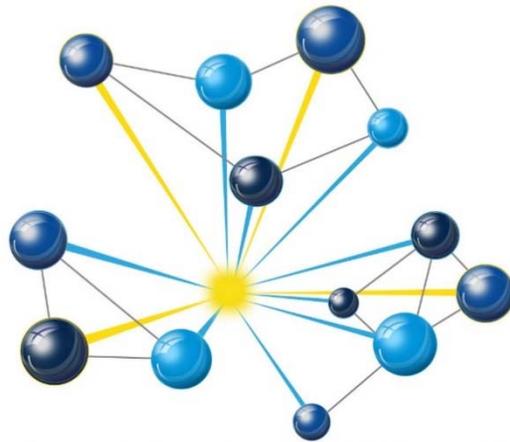


Vanguard Initiative

Annual Report

February 2016 – September 2017



VANGUARD INITIATIVE

New growth through smart specialisation



Introduction from the Chair

Vanguard Initiative regions first came together on 8 November 2013, at the high-level conference on Regions as Motors of New Growth Through Smart Specialisation in the European Parliament. Less than four years later, on 10 July 2017, the Vanguard Initiative became a non-profit association (ASBL), with the primary objective of contributing to the economic development and employment of our member regions through **inter-regional collaboration and joint investments**.

The creation of a **legal entity and a new-shared funding model** to support the Vanguard Initiative presents the opportunity to further deepen our cooperation, implementing our four-step methodology to build and commercialise industrial value chains. The core political commitment of the Vanguard Initiative is defined in the November 2014 Milan Declaration, in which our political leaders state that they are ready to lead by example and to work in partnership with the EU institutions to spur growth through innovation and industrial renaissance, creating new areas of global competitive advantage for Europe.

Four years of cooperation between the 29 member regions, five associated members and eight observer regions, involving innovation and industrial stakeholders, have gone by and they are now bearing fruits. European Commission **President Jean-Claude Juncker** highlighted the Vanguard Initiative as **“a good example of regional collaboration”** in his keynote speech at the Seventh Cohesion Forum in June 2017. EU leaders are considering fundamental issues in relation to shaping the **future of Europe**, including how to work together to make our industry stronger and more competitive to contribute to smart, sustainable and inclusive growth throughout Europe. Success will depend on the efforts and cooperation of the EU institutions, Member States, regions and, most importantly, on the role that industry will play. The Vanguard Initiative will continue to play an active role in this process.

A great amount of work has already been carried out, mobilising regional stakeholders as well as in the dialogue with the EU institutions. In addition, significant work was undertaken to develop the ASBL and the shared funding model. The five Vanguard Initiative Pilot projects have reached important milestones in the journey towards commercialisation and the uptake of industry-led inter-regional solutions. Collaboration in the framework of the Vanguard Initiative has also led to other benefits for our regions. Bilateral connections, developed in the framework of Pilots and demonstration cases, are highly valuable for our companies and they will lead to new business opportunities. As examples, I can mention some of them. The cooperation between companies from Flanders and South Netherlands involved in the additive/subtractive case in the 3D Printing Pilot as well as the 50 letters of intent signed by companies involved in the Efficient and Sustainable Manufacturing Pilot, stating the commitment to co-fund future networked pilot plants in the area of De- and Remanufacturing. However, there are many others.

With the support of the evidence generated by the Pilots, the Vanguard Initiative has developed a position paper on *Regions and Future EU Policies for Growth and Investment*, which has been shared with all relevant EU Institutions during the Emilia-Romagna July 2016–June 2017 chairmanship and discussed in many meetings with senior EU policy and decision-makers. The influence of the Vanguard Initiative’s methodology and ideas have been endorsed in recent initiatives of the European Commission, such as the thematic smart specialisation platforms. Vanguard was also mentioned in two recent EC Communications regarding **Smart Specialisation** and a renewed **EU Industrial Policy Strategy**, where the partnership with regions is considered an important dimension.



We are at a time when we need to imagine, invent, create and we must present bold and radical out-of-the box ideas on proposals, acting in unity to be bolder and more ambitious. The Vanguard Initiative remains committed to building on the progress of the past year to achieve future ambitious goals.

Luca Del Gobbo
Regional Minister for University, Research and Open Innovation
Representing Vanguard Initiative Chair, Lombardy Region, July – December 2017



Table of contents

Introduction from the Chair	i
Vanguard Initiative Pilots	1
Advanced Manufacturing for Energy-Related Applications in Harsh Environments	1
Bioeconomy Pilot.....	3
Efficient and Sustainable Manufacturing.....	4
High-Performance Production Through 3D Printing	6
New Nano-enabled Products	8
Vanguard Initiative Task Groups	9
Policy Influencing	9
Vanguard Pilot Monitoring.....	12
Future of the Vanguard	17
Annex – Demonstration Cases	18



Vanguard Initiative Pilots

Advanced Manufacturing for Energy-Related Applications in Harsh Environments

Over the past year, the Pilot in Advanced Manufacturing for Energy-Related Applications in Harsh Environments (the ADMA Energy Pilot) has seen considerable progress. The Pilot was launched in June 2014 with the objective of making the EU the global leader in manufacturing of robust high integrity components for marine renewables and offshore energy applications.

Building on extensive industry consultation and a resulting technology roadmapping exercise completed in 2016 the ADMA Energy Pilot has, during the course of 2017, prioritised work across four of the Pilot's identified Industrial Challenges:

- Corrosion
- Manufacturing and handling large-scale components
- Sensing, instrumentation and remote monitoring
- Reducing the operational and maintenance costs of offshore energy

Corrosion has seen most development in 2017, and early in the year, the Pilot was awarded an EU-funded project to progress work. NeSSIE (North Sea Solutions for Corrosion in Energy) – funded by the 2016 European Maritime and Fisheries Fund Blue Technologies call - will tap into existing knowledge of anti-corrosion technology/novel materials solutions in the maritime sector supply chain (including oil and gas) to develop investable demonstration projects for offshore renewables in the North Sea. NeSSIE will develop near-to-market demonstration projects, which, if successful, will produce products and solutions to be commercialised and rolled out into global offshore renewables markets.

Fully-developed concepts for the further three additional demonstration cases have now also been developed by the case leaders of Skåne, the Basque Country and Emilia Romagna, respectively. In 2017, the Energy Pilot also became a recognised partnership under each of the

NeSSIE – North Sea Solutions for Innovation in Corrosion in Energy

€860,000

2017-2019

Partners: Scottish Enterprise (lead partner), ASTER – Società Consortile per Azioni, Basque Energy Cluster, Fundación Asturiana de la Energía, Lombardy Energy Cleantech Cluster Sirris, Svenskt Marintekniskt Forum, University of Edinburgh

European Commission's Thematic Smart Specialisation Platforms in Energy and Industrial Modernisation. Through the platforms, the Pilot has accessed support to undertake a value chain analysis in sensing, instrumentation and remote monitoring, and has received further consultancy support to help develop the other demonstration case concepts.

Pilot regions also submitted an application, led by Basque Country, to the Horizon 2020

"It sets a really good example of cooperation among regions of the EU around a specific area to capitalise on industrial strengths. There is a real opportunity to replicate the NeSSIE model across other regions and in other industrial sectors" – Jan Reid, Scottish Enterprise



Innosup scheme. The aim of the proposal – the results of which should be known in early 2018 – is to develop industry-led cross-sectoral value chains in advanced manufacturing for offshore energy, automotive and aerospace sectors.

Overall, guided by the 2017 Pilot Action Plan approved in the first half of the year, the Pilot’s activities in 2017 have focused on mobilising regions around the demonstration cases and exploring new avenues of funding. Due to a delayed start to the shared funding model in 2017, activities have been more limited than

originally planned, albeit with a focus on working together through NeSSIE to develop and test methodologies which can be applied to additional demonstration cases.

The advent of the Shared Funding model in 2018 will enable the Pilot to accelerate activities in 2018, with a particular focus on communication, project development and developing approaches to designing and financing new solutions to access deep sea oil reservoirs faster and more efficiently, as well as reducing the lifetime costs of offshore/marine renewables.

Lead regions: Basque Country and Scotland

Participating regions: Andalucia, Asturias, Dalarna, Emilia-Romagna, Flanders, Lombardy, Navarra, Norte, Ostrobothnia, Skåne, Southern Denmark



Bioeconomy Pilot

The sustainable use of biomass for innovative material applications is a global challenge, which represents a significant economic opportunity for Europe. The nature of the opportunity, which requires large-scale investments and R&D, presents particular challenges for the implementation of this Pilot's activities. To pick up the challenge, this 'second generation' (starting in summer 2015) Pilot has established seven demonstration cases and is currently revising their results in order to strengthen its action in 2018.

In the case on bio-aromatics, based on the replacement of high value chemicals from fossil base, the demo case in question originates from a previous cooperation between three Vanguard regions and is now expanding. At the end of November 2017, a conference, supported by the Watify campaign, will bring together a large audience of Vanguard regions to design future cooperation that will allow an expansion of the demo case along with the development of different value chains.

In the field of biogas, after having agreed a common vision for the future of the

industry, the production of Liquefied Bio-methane is increasingly becoming the focus. Initially proposed by South Netherlands it has been favourably received by different regions and Emilia Romagna & Lombardy have taken the proposal a step further by designing a working project for the setting up of a demo plant for its production and distribution, with a special interest on heavy transports (trucks & buses).

In other demo cases, such as jet biofuels or waste gas conversions, technical and economic issues are under further consideration before drafting a detailed business plan for its implementation under the Vanguard initiative.

The Pilot has also generated value for individual regions. For example, in Asturias, participation has fostered the regional collaboration gathering enterprises, RTOs, and other entities around this subject. It has also helped promote bioeconomy in Asturias. As an example, the first course in bioeconomy in Asturias will be held in November.

Lead regions: Randstad Region and Lombardy

Participating regions: East-Netherlands, Emilia-Romagna, South-Netherlands, Scotland, North-Netherlands, Tampere, Flanders, West Finland & Central Finland, Wallonia, North Rhine-Westphalia, Skåne, Andalusia, Värmland, Navarra, Brandenburg, Basque Country, Baden-Württemberg, Lodzkie, Asturias, Malopolska, and Basilicata.



Efficient and Sustainable Manufacturing

The Efficient and Sustainable Manufacturing (ESM) Pilot aims to develop a European networked infrastructure of pilot plants in key-areas of manufacturing, supporting company innovation in breakthrough technologies and applications that require manufacturing efficiency and sustainability.

The ESM network is involved in several EU projects aimed at spreading the Vanguard methodology and developing the demo case technical contents

- Greenomed (INTERREG MED)
11 Partners-Budget € 2.050.000,00
- SCREEN (H2020)
18 Partners-Budget € 1.742.747,50
- FiberEUse (H2020)
22 Partners –Budget €9.595.548,75

Current priority areas are:

- De- and remanufacturing (Circular Economy)
- Advanced Sustainable Surface and Coating Manufacturing Technologies on Polymers
- Smart and Adaptive Assembly and Manufacturing Systems
- Digital and Virtual Factory
- Energy and Environmentally Efficient Manufacturing Processes

The activities carried out at pilot level were mainly conceived to achieve the following objectives:

- Improve governance and organizational structure of demo-cases to guarantee continuity
- Boost the progress of demo-case projects

- Address strategic priorities that are transversal to all Vanguard pilots and demo-cases

As a result, 10 new Regions have been integrated to the ESM network and constant support have been offered to demo case coordinators through monthly Steering Committee meetings.

Pilot representatives have also participated in events and meetings with senior officials, such as the Smart Regions conference in June 2017, the Vanguard Initiative – New business opportunities for European Industry event in Saxony in October 2017, and a meeting with members of the Cabinets of several European Commissioners. Moreover, thanks to WATIFY and Re-confirm support, ESM organised three interregional meetings, namely for the De- and Remanufacturing, Smart and Adaptive Manufacturing and Surface and coating technologies cases. Pilot regions have also collaborated to submit several EU funding applications.

The ESM De- and Remanufacturing demo case was invited by DG Growth and DG ECFIN at the Workshop on "Investment Platforms" held in Brussels on November 2017 as an example of successful investment platform amenable of support by the EIB funding

The De- and Re-Manufacturing demonstration case has a well-developed business model, with over 50 letters of intent from industrial stakeholders. In May 2017 the demo case organised a plenary event with the participation of more than 50 stakeholders (industrial, research and political). Moreover, the case has submitted an Expression of Interest for Thematic Partnerships to Pilot Interregional Innovation Projects. The Digital & Virtual



demo case has also submitted an expression of interest in collaboration with "Industry4.0 for SMEs" partnership.

Lead regions: Catalonia and Lombardy

Participating regions: Auvergne-Rhone-Alpes, Baden Württemberg, Basque Country, Emilia Romagna, East Netherlands, Flanders, Galicia, Hauts de France, Madzowiecke, Navarra, Norte, Pais de la Loire, Saxony, Scotland, Skane, Slovenia, South Netherlands, South Denmark, Tampere, Trentino, Wallonia



High-Performance Production Through 3D Printing

The key objective of the Vanguard 3D Printing (3DP) Pilot is to accelerate market uptake of 3DP applications in the EU through development of industry-led, transregional demonstration platforms that connect 3DP capabilities and actors that previously operated in largely disconnected and fragmented value chains in Europe. Bringing prototypes to production by securing the reproducibility of application remains a critical point for the industry. The “Learn” and “Connect” phases of the Vanguard Initiative methodology have been successfully implemented. In 2017, the Pilot also made progress in the “Demonstrate” phase. We highlight below some of the key developments in recent months.

"Thanks to the Vanguard Initiative, we have a much deeper comprehension of the mechanisms and instruments which guide successful collaborations between industry and research area in Europe". A. Leardini, DPhil – Istituto Ortopedico Rizzoli, Bologna.

From learn to Connect – Knowledge creation and sharing

An online inventory (domains of application, materials, machines, etc.) is currently in development for the Pilot. In addition, specific demo case initiatives have allowed the creation of, among other outputs, a mapping of training capabilities. Such exercises highlight the rationale for connecting entities; no entity can offer the whole spectrum of services.

The 3DP Pilot has experienced several barriers and identified possible solutions to them (in terms of e.g. funding, governance, etc.). This creates new knowledge, which is valuable for policy makers and for similar partnerships. For example, the 3DP Pilot's

lessons learnt and suggested solution paths formed the basis of several discussions and meetings with the European Commission (EC), most of which are focusing on the inadequacy of the current funding instruments (at both regional/national and EU levels) to support cross-regional demonstration projects (>TRL5). The Pilot contributed to briefing notes discussed during several meetings at inter-EC Cabinets level (during Spring and Summer 2017) on the nature, depth and characteristics of these inadequacies as well as on potential solutions and the way forward.

"Thanks to the 3DP Pilot, the number of contacts of our organisation related to AM has increased by 30%. It has allowed us to find a high-level partner to supplement technical and transversal disciplines to cover the needs that were lacking in order to achieve the objectives of the demo case" – Berta Gonzalvo and Jose Antonio Dieste, AITIIP Aragon.

Connect and demonstrate – Industrial projects' identification, preparation and...realisation!

The establishment of pipelines of (projects for) collaborations between previously non-connected entities (companies and RTOs, etc.) has led to the development of concrete and specific projects.

In the area of hybrid components, several entities are now collaborating further on specific areas of high industrial interest. This year, two industrial projects were launched in the context of the demo case.

In the context of the 'Additive and subtractive' platform, 20 concrete user cases from industrial companies from



different regions and different sectors (Aerospace, Automotive, Machinery & Tooling, Packaging, electronic equipment) have now been identified.

Several entities are working together to speed up certification processes in the area of '3DP for Healthcare' and a European training scheme project is currently in development.

The Pilot has further developed the mapping of capabilities and actors, adding data of new regions (e.g. Lower Austria) as well as linking the Vanguard mapping to other databases (e.g. Wholers' Report Database), expanding the mapping to more than 1400 actors identified in 22 regions (including >900 companies).

Lead regions: Flanders, South-Netherlands, and Norte

Participating regions: Andalusia, Aragon, Asturias, Auvergne Rhône Alpes, Baden-Wurttemberg, Catalonia, Emilia-Romagna, Lombardy, Lower Austria, Malopolska, Nord-Pas-de-Calais-Picardie/Hauts-de France, Nord Rhine Westphalia, Region Örebro County, Saxony, Skåne, Randstad, Tampere, Trento, Upper Austria, and Wallonia



New Nano-enabled Products

During 2017, three different demonstration cases on new nano-enabled products have been implemented, each with sub-cases.

The main objective for 2017 has been towards materialising the identified synergies, widening and expanding industrial interest and regional commitment into a sustainable **pipeline of effective industrial projects**, working towards moving to the “Demonstrate” phase.

Successful implementation of the Nano pilot along the four-step VI methodology requires a network manager with profound knowledge in nanotechnology. The Pilot hopes to engage a network manager in the final quarter of 2017, once the shared funding model is operational. However, the pilot has held one physical meeting and four steering group meetings to support the three demo cases development. In December, a plenary meeting is foreseen.

In 2017, the focus of the Nanowires for ICT and Energy Applications demonstration case has been on better understanding the needs of our target industry sector and the missing links in potential new value chains. This has been done by distributing a general value chain matrix model for input from our case partners. Towards the end of 2017, the results from the mapping will be used to develop strategies for how new value chains can be identified in, and these strategies will be implemented, starting with networking activities end of 2017.

The focus of the Nano-enabled Micro System for Bio Analysis demonstration case (NeMs4Bio) is the transformation of

complex bioanalytical workflows into the Lab-on-a-Chip format aiming at cost-reduction through automation yet without sacrificing performance. The technology platform aims at modularity and easy design adaptation around a silicon base platform, focusing on high-value diagnostic assays and bioanalysis rather than low-cost mass products.

The Democase “Nano-Enabled Printed Electronics” focuses on novel, low-cost products with electronic functionality which are (at least in part) manufactured via printing and that rely on nanomaterials to achieve their function. Currently, a first project has been initiated on printed smart tags (South Netherlands and Baden-Württemberg). Further projects are in the planning phase (smart textiles – incorporating electrochemical and radiation sensor functionalities in clothing or fabrics; printed electronics on curved surfaces – additive manufacturing for extra functionality e.g. in aerospace or automotive industry; printed organic electronics scale up – currently on hold due to lack of funding).

Further general areas of interest include printed energy harvesting (e.g. integrated photovoltaics for environments not suited for conventional PV systems, such as windows and facades) and cross-technology applications (integrating existing PE technologies such as energy harvesting & storage, sensors, OLED, passives in one functional prototype that comprises a high degree of all-printed integration and multi-functionality).

Lead regions: Skåne Region and Tampere Region

Participating regions: Asturias, Navarra, Auvergne-Rhône-Alpes, North Rhine-Westphalia, Baden-Württemberg, South-Netherlands, Emilia-Romagna, Wallonia, Flanders, and Wales

Vanguard Initiative Task Groups

Policy Influencing

The main aim of this task group is to influence the EU agenda in those areas of policy that are most important in creating the conditions that allow our pilot projects to flourish. The Vanguard Initiative's policy influencing efforts have been very fruitful in recent months, with direct references to the Vanguard Initiative in speeches from senior EU representatives and in EU policy documents, as well as a number of policy initiatives inspired by the work of the Vanguard partners.



A Vanguard Initiative session dedicated to cross-regional collaboration was organised during the **WIRE 2016 conference** (9 June 2016). This constituted useful input for the development of policy positions.

DG GROW: *"The Smart Specialisation Platform for Industrial Modernisation is a good example of breaking down traditional silos and a fresh look at synergies, as advocated in your position paper. We welcome very much the Vanguard Initiative's leading role in that context. We are convinced that our joint efforts will stimulate investment, innovation and growth in the European regions"*

Lead: Wallonia (previously Scotland)

Members: Auvergne-Rhône Alpes, Basque Country, Navarra, Emilia-Romagna, Lombardy, South Netherlands, Randstad, Scotland, Central Sweden, Saxony.

Observers: East Slovenia, West Slovenia

Meetings 2016: 6

Meetings 2017: 7

A **Vanguard Initiative Position Paper**, "Regions and future EU policies for Growth and Investment", was presented and adopted at the High-Level Directors Meeting on 7 of November 2016. It served as reference document for the intervention of VI representatives in several high-level conferences and workshops, including European Industry Day, the Smart Regions Conference, and the Cohesion Forum. Positive responses to the position paper from the offices of the Commissioners for Research and Innovation, Regional Policy, and Industrial Policy and from the Directorates-General for Internal Market and Industry and for the Digital Agenda allowed the Vanguard Initiative to engage in further dialogue with senior representatives from the EU institutions.

In particular, we had two meetings with the cabinets of several Commissioners in the first half of 2017, as well as meetings with the European Commission Director General for Regional and Urban Policy, and a Director in the Research and Innovation Directorate-General. These meetings enabled constructive exchanges about bottlenecks, financing needs and possible solutions, complementing more technical discussions developed with Commission

services in the context of its Thematic Smart specialisation platforms.

The Vanguard Initiative was also invited to present at the **Competitiveness & Growth working party of the Competitiveness Council (Industry)** in September 2017, feeding in the conclusions to be adopted by national government ministers by the end of 2017 on industrial policy. The Task Group prepared background material for these meetings, in close collaboration with VPM.



A **Vanguard Initiative meets European Parliament session** was organised on 8 of November 2016, back-to-back with the High-Level Directors meeting, with the objective of discussing the VI position paper. One follow-up meeting was organised with MEP Edouard Martin in March 2017.

The Task Group also provided VI contributions to 4 open consultations about EU policies: European Innovation Council, Mid-term review of Horizon 2020, Interim evaluation of COSME, and preparatory phase of the smart specialisation communication issued in July 2017. Representatives of the TG also participated

in a hearing at the Committee of the Regions, in the process of the preparation of an opinion on the local and regional dimension of H2020, and gave input for a CoR opinion on smart specialisation. Some amendment proposals were also formulated relating to the EP resolution on building blocks for a post-2020 EU cohesion policy.

*DG CONNECT: "...Therefore H2020 DIHs will focus on highly innovative cross-border experiments with a European dimension, bringing synergies between investments done in Regions and in R&I programmes at EU or MS level. The **Vanguard projects** have been piloting such a cross regional collaboration, and we hope to make use of your experience to make the networking of DIHs a success"*

Beyond those external activities, the Task Group also provided the network with information about policy influencing opportunities in the EU institutions, and about EU policy developments and events. It also developed, in collaboration with VPM TG, a common tool for gathering VI positions about working programmes 2018-2020 (H2020-COSME).

Cabinet of Commissioner Moedas: "Interregional collaboration along the lines developed by the Vanguard Initiative and the further development of innovation clusters, will also act as a catalyst to foster open innovation in Europe"

As a result of policy influencing efforts developed by the whole network, the Vanguard Initiative and its main policy positions – e.g. the case for interregional investment and cluster collaboration support – have gained a high political momentum in the last months. It has inspired inflexions in the EU policy making, new policy initiatives (Thematic smart specialisation platforms and connected services, new COSME call for strategic



clusters partnerships for S3 investment, pilot action for interregional innovation projects, etc.), and is triggering reflections

on the post-2020 perspectives, even if we are still on the road towards operational solutions.

The Vanguard Initiative was also quoted several times in EU policy documents or speeches:

- Council conclusions on "[A more R&I friendly, smart and simple Cohesion Policy and the European Structural and Investment Funds more generally](#)" (June 2016)
- European Parliament resolution on [Cohesion Policy and Research and Innovation Strategies for Smart Specialisation](#) (September 2016)
- CoR opinion on [Smart Specialisation Strategies \(RIS3\): impact for regions and inter-regional cooperation](#) (March 2017)
- [Commission's reflection paper on harnessing globalisation](#) (May 2017)
- [President Juncker's speech at the 7th Cohesion Forum](#) (June 2017)
- CoR opinion on [Local and Regional Dimension of the Horizon 2020 Programme and the New Framework Programme for Research and Innovation](#) (July 2017)
- S3 Communication '[Strengthening innovation in Europe's Regions](#)' (July 2017)

"Stronger strategic interregional cooperation and sustainable linkages between regional ecosystems along smart specialisation priority areas can increase competitiveness and resilience, as illustrated by the Vanguard initiative. This led the Commission to set up, with support from its Smart Specialisation Platform, thematic platforms on industrial modernisation, energy and agri-food to help regions to work together on their smart specialisation priorities, involving policy makers, researchers, business, clusters and civil society."

Strengthening Innovation in Europe's Regions Communication



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 five current VI Pilot Projects. As 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 an increasingly important horizontal issue for the Pilots, the activities of the Financial Instruments Task Group have been integrated into the work of VPM. This means that work is organised efficiently and is focused on the real needs of the Pilots.

Lead: South Netherlands

Pilot Lead Members: Basque Country, Catalonia, Flanders, Lombardy, Norte, Randstad region, Scotland, Skane, South Netherlands, Tampere as well as **Additional Members:** Auvergne-Rhône Alpes, Emilia Romagna, Galicia, Hauts-de-France, Navarra, Pays de la Loire, Saxony, South Denmark, Wallonia and West Finland

Observers: East Slovenia, West Slovenia

Meetings 2016: Eight

Meetings 2017: Seven

Exceptional meetings: 20 (Vanguard Initiative Matchmaking Event; Shared Funding Model; Cross Pilot Action Plan)

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 and on the difficulties they face in the further development.

The Task Group has been leading the work on the "VI Shared Funding Model", the system organising the financial contribution of regions to the management and coordination costs of VI Pilot Projects. The mandate to initiate this work was given at the Annual Political Meeting of February 2016, after which the November 2016 High Level Director's Meeting approved the Shared Funding Model to ensure the financial sustainability of VI Pilot Projects' support. Taking into account the delayed set-up of VI's legal entity, and hence the start of the Shared Funding Model, VPM has also been working on a series of financial risk management measures that were approved by the October General Assembly.

VPM has assisted all Pilot Projects in the preparation of their 2017 Action Plans 2017, which were approved by the VI regions in March 2017. VPM has equally coordinated the work leading to the 2017 Cross Pilot Action Plan. With a view on the 2018 Action Plans, VPM is preparing a minimum set of KPIs and deliverables, as a common base for all VI Pilot Projects to facilitate reporting towards the network.

Matchmaking Event – 25 February 2016

Coordinated by VPM with financial support from the European Commission
Over 400 participants

34 EU regions

44% from the private sector

24 demo-case sessions

4 cross-cutting sessions

152 bilateral meetings

In order to support VI regions' representatives to reach out to their companies and knowledge institutes, VPM has stimulated all Pilot Projects to regularly publish 'Update Sheets' describing the



content and progress. Similarly, brief Pilot Project and demo case descriptions have been published on the VI website, to inform external interested parties and raise their interest to get connected to VI Pilot Project activities.

Given the importance of matchmaking events VI, represented by Brainport Development (associated member of VI), has joined the WATIFY campaign (2017-2018) on Technological Transformation and Digitisation, which includes a large budget to organise matchmaking events throughout the EU. In 2017, the VI Pilot Projects on 3D Printing and Efficient and Sustainable Manufacturing have benefitted from WATIFY's support in Pilot Project and Demo Case specific matchmaking events.

VPM has played a prominent role in the Vanguard Initiative's overall activities on funding. As the core activities of the Vanguard Initiative, the Pilot Projects and their demo cases are to a large extent the voice and the image of the network, and are a driving force in the set-up of and influencing for demand-based financial solutions.

VPM has supported the Pilot Projects and the network in short, mid-term and long-term solutions, to make optimal use of EU programmes and to influence their future content and design:

During VPM meetings, existing project calls with a relevance for Pilot Projects – such as Innosup-01, Innosup-03, cluster calls, tenders, etc. – have been presented and discussed.

In the context of influencing future project calls, i.e. the Work Programmes 2018-2020 of Horizon 2020 and COSME 2018, VPM has -in close collaboration with the Policy Influencing Task Group - set up an online cloud-based instrument in which company, cluster and knowledge institute experts involved in the Pilot Projects deliver input to express support or propose modifications to draft EU documents in order to make them more fitting for their activities. This input is

intended for use by VI and its individual member regions in their influencing activities, including the use of Member State channels.

This exercise pioneered a way of working that VPM has taken to a next level in its contribution to additional mid-term (current EU Programming period) and long-term (post-2020) financial solutions:

Invited in September 2016 by DG REGIO and DG GROW to share with the EC funding and investment needs of VI Pilot Projects that could not find an answer or solution in the existing EU architecture, VPM has produced the "VI Pilot Projects Funding and Investment Needs" paper. Since its delivery and presentation before the November 2016 VI High Level Directors Meeting, it has served as a reference document for numerous high-level meetings of VI with EU institutions (European Commission, European Parliament, Committee of the Regions, Smart Specialisation Platform on Industrial Modernisation) during 2016 and 2017, with the participation of Pilot representatives.

The Funding and Investment Needs note has been further developed with technical demo case details. VPM was responsible for the input delivered by DG GROW to an internal "Investment Brainstorming Day" (June 2017) gathering several EC Cabinet and DGs.

The Funding and Investment Needs note's central concept is a 3-layered schematic representation of a "demonstration facility", outlining the different activities such facility is performing and detailing possible ways of funding and financing these. These include investments that need 100% of public funding (layer 1), industrial upscale activities that can find answers in 100% private financing (layer 3), and investments and activities that are helped by mixed public-private solutions – see below.

VPM has defined 4 priority Action Lines from the note which it wishes to further develop and finetune on a technical level in collaboration with experts, both from VI side as well as from the EU's institutions side:

1. Infrastructure Investments (led by South Netherlands)
looking for solutions for a grant based (H2020/FP9, Interreg, other) investment scheme for demonstration facilities
2. InnovFin ADMA (led by Emilia Romagna)
looking for a modification of an existing EIB "InnovFin" demonstration instrument, in order to serve Advance Manufacturing activities
3. Next generation Manunet (led by Lombardy)
looking at an improved future version of the existing Manunet ERA-Net, and of Joint Programming Initiatives that would serve VI activities in general
4. Fund-of-Funds (prepared by Lombardy, no lead appointed yet)
looking at solutions that could be offered by EIF

The Vanguard Initiative's methodology having served as the main inspiration for the EC's Smart Specialisation Platforms, VPM and its Pilot Projects have now officially linked their activities to this initiative¹, while keeping its independence. VPM and the Pilot Projects have all

"The European Commission has been closely following the exciting progress made to date by the Vanguard Initiative regions in order to better understand what steps would need to be taken and what possible bottlenecks would need to be overcome by collaborating regions. This pertinent knowledge could then be used to develop a relevant methodology outlining a variety of best practices to be considered, as well as shortcuts and steps that could be taken by other regions that plan to launch interregional collaborative initiatives aimed at cross-border investments." EC DG JRC, (2017) "Implementing Smart Specialisation -Thematic Platform on Industrial Modernisation", S3 Policy Briefs Series n° 22/2017, p. 12-13)

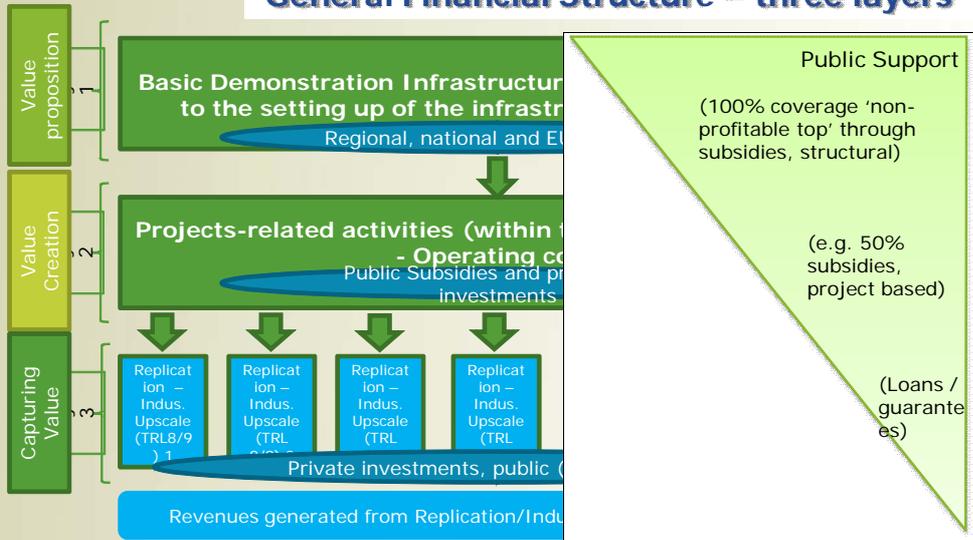
participated and actively contributed (presentations, speeches, round tables) to the events (Smart Specialisation Platform conferences and Steering Group in Brussels, Barcelona and Valencia; Smart Regions Conferences in Brussels and Helsinki). As such VPM and the Pilot Projects, being the most advanced collaborations and presenting itself as a clear group, is a core player in the "structural dialogue" with the European Commission, and is using this additional channel to co-shape future solutions of which it hopes to benefit as first.

"Representatives of the Vanguard Initiative presented a number of specific funding issues and possible solutions that are related to cross-regional joint demonstration projects (standalone or linked demo projects). These include the funding of the demo infrastructure (layer 1), its maintenance (layer 2) and the upscale of tested and validated industrial projects (layer 3). The Commission welcomed this input and proposed a working process to explore possible medium and long-term solutions by involving other relevant Commission services and interested regional partnerships, and eventually the EIB/EIF at a later stage." EC DG JRC, (2017) "Implementing Smart Specialisation -Thematic Platform on Industrial Modernisation", S3 Policy Briefs Series n° 22/2017, p. 27)

¹ all 5 VI Pilot Projects are "registered Partnerships" in the S3P on Industrial

Modernisation; VI's Pilot Project 'ADMA Energy' is also registered in the S3P on Energy

General Financial Structure – three layers



- Notes:
- Layer 1 (to some extent Layer 2 as well) contains « non-profitable top » (hence the subsidies)
 - Layers 2 & 3 can't be functioning if « top » not financially secured (→ no bankable plan !)
 - Layers inter-dependent; smooth flow between them key !





Communications

European Commission funding in the context of the first Vanguard Initiative cross-pilot Matchmaking Event in February 2016 enabled the Vanguard Initiative to develop new communications materials such as a video, a revamped website, and an intranet to facilitate our joint working.

Lead: Central Sweden

Members: Małopolska and Basque Country (previously also South Netherlands, Flanders, and Cantabria)

Meetings 2016: Five

Meetings 2017: Eight

For 2017, the Communications Task Group adopted an activity plan based on recommendations made in a communications strategy (also funded by the Commission grant). The overall goals are:

- Increase information exchange within the network
- Align messages from the different actors in the network
- Increase external visibility, mostly towards industrial actors
- Increase cooperation with pilots and other task groups
- Increase cooperation with the S34Growth project and Watify Campaign

In April 2017, the Task Group sent out the first Vanguard Initiative newsletter. The target audience for the newsletter is representatives of the Brussels Network. The Brussels Network meets approximately every six weeks. This is the only occasion where: i) results and progress are shared with all Brussels-based representatives;

and ii) requests and needs arising from each task group are officially communicated. In between these Brussels Network Meetings (BNM), a variety of network activities and meetings take place, both in Brussels and in the Member regions. The monthly structured newsletter helps the representatives in the Brussels Network to keep up with progress.

Website visits by country

Country	07/16 - 06/17
Belgium	21%
Italy	14%
Spain	11%
Germany	8%
Netherlands	8%
United Kingdom	6%
France	5%
Sweden	4%
United States	3%
Finland	2%

Regular meetings with the Task Group and representatives of the Pilots have explored possible cross-pilot communication activities. The Task Group also cooperated with the S34Growth Interreg Europe project.

@VI_Brussels statistics – March 2016- September 2017

Number of followers increased by **54%**

1274 profile visits during November 2016

1033 profile visits during June 2017

16900 tweet impressions (views of tweets) during June 2017



Future of the Vanguard

This Task Group has focused on the development of the statutes and internal rules for the Vanguard Initiative ASBL. Following internal adoption, these entered the Official Belgium Register on 10 July. The Statutes have been translated into English.

In summary, the Statutes define the structure and functioning of the Vanguard Initiative; the rights and obligations of members, associate partners, and observers, and various other issues. The internal rules develop in greater detail the

processes and procedures outlined in the Statutes.

Since May, the Task Group has been working on membership criteria for the Vanguard Initiative, with an assessment based on data from the Innovation Scoreboard and a questionnaire about the region's Smart Specialisation Strategy and capacity to collaborate with other Vanguard regions.

The Task Group will continue to act as a statutory body, providing advice to the Board when required.

Lead: Navarra (previously Auvergne-Rhône-Alpes)

Members: Auvergne-Rhône-Alpes, Baden-Württemberg, Basque Country, Catalonia, Emilia-Romagna, Flanders, Lombardy, Scotland, Tampere, Wallonia

Observers: East Slovakia, West Slovakia

Annex – Demonstration Cases

ADMA Energy	
Case title	Lead
Corrosion	Scotland – Scottish Enterprise
Manufacture of large-scale components	Skåne – Svenskt Marintekniskt Forum
Operations and Maintenance	Emilia Romagna - ASTER
Sensing and Instrumentation	Basque Country – Cluster de Energía
Bioeconomy	
Case title	Lead(s)
Lignocellulose refinery	Biobased Delta
Bio-aromatics	Vito / Flanders, TNO / South Netherlands, Clib2021 / NordRhein Westfalia
Turning waste-gas into value	Flanders Biobased Valley – Clib2021 / NRW
Biogas beyond energy production	Lombardy Green Energy Association – ASTER / Emilia Romagna
Bio-aviation fuel	Värmland – Paper Province
Food and feed ingredients from agro-food waste	Scotland – Scottish Enterprise
Food and feed ingredients from algae	Asturias – University of Oviedo
Efficient and Sustainable Manufacturing	
Case title	Lead(s)
De-and Remanufacturing	Lombardy
Smart and adaptive manufacturing	Lombardy, South Netherlands
Digital and virtual factory	Lombardy, South Netherlands, Tampere
Sustainable materials and surface treatments	Catalonia, Lombardy
Energy Efficiency	Norte
High Performance Production through 3D Printing	
Case title	Lead
3D printed hybrid components	Emilia Romagna – Università di Bologna, UNIBO
Additive Subtractive Platform High Precision & High Finish Production	South Netherlands – Brainport + Lombardy – Politecnico di Milano
3D printed automotive components for large, medium, and small complex parts	Aragon – AITIIP
Machinery, tooling and complex shapes	Wallonia – SIRRIS
3D Printed Customized Components for Orthosis, Exoskeleton and Exoprosthesis (Healthcare)	Emilia Romagna – Istituto Ortopedico Rizzoli
Mass-customised 3DP consumer products	Norte – INEGI
3DP in Textile	Lombardy – Unindustriacomo
New Nano-Enabled Products	
Case title	Lead
Nanowires for ICT and energy applications	Skåne
Nano enabled Micro System for Bio Analysis (NeMs4Bio)	Flanders – IMEC
Nano-Enabled Printed Electronics	Baden-Württemberg – Karlsruher Institut für Technologie