



# NMP-REG

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NMP-REG aims at improving regional policies for the delivery of innovation in nanotechnologies, new materials and new production technologies (NMP), to the manufacturing sector.

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An interregional cooperation project for improving innovation delivery policies

## NMP-REG ACTION PLAN FOR THE REGION OF NORTH RHINE-WESTPHALIA (NRW)

Project partner: NMWP.NRW

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Research & innovation



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## Table of Contents

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Part I	<b>General Information</b>	3
	About the NMP-REG Project	3
	About the Action Plan of NRW Region	3
Part II	<b>Policy Context</b>	5
	About NRW Region	5
	Policy Instruments addressed by NRW Region	6
Part III	<b>Introduction to the Actions Envisaged</b>	7
Part IV	<b>Details of the Actions Envisaged</b>	9
	Action 1: Set entrepreneurial support as a strategic cluster goal and introduce new basic cluster services to foster entrepreneurship with focus on NMP	9
	Action 2: Adapt and implement a regional business accelerator programme with focus on NMP Technologies	17
	Action 3: Establish a central hub for entrepreneurial support in the field of NMP with primary service offers in coaching and partner matching of NMP start-ups	26
	<b>Abbreviations</b>	32
	<b>Official Signature(s)</b>	33

## Part I – General Information

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### About the NMP-REG Project

Nanotechnologies, new Materials and Production technologies (NMP) represent a group of technologies with innovative impacts on a wide range of industrial sectors. They are an important part of the so called Key Enabling Technologies (KET), considered by the European Union (EU) of strategic importance for regions to manage a shift to a knowledge-based economy<sup>1</sup>. The EU believes these technologies can reverse negative growth trends in manufacturing and foster growth and jobs.

The statements are clear, but the road from intent to transfer, application and exploitation of NMP in manufacturing is long. NMP is dealt with in research. However, the common challenge is ensure that innovation actors cooperate to deliver research results to the manufacturing sector, with subsequent benefits for regional growth.

This is the context of NMP-REG (Delivering Nanotechnologies, advanced Materials and Production to REGIONal manufacturing), a European Territorial Cooperation project co-financed by the European Regional Development Fund (ERDF), through the INTERREG EUROPE Programme.

NMP-REG groups seven partners from five regions located in five different countries<sup>2</sup>, who are facing this regional development challenge together. Their overall objective is to improve regional policies for delivery of innovation in NMP to manufacturing. NMP-REG focuses on policy actions that can support innovation delivery, using coordinated action from key players.

NMP-REG achieves this through exchanging experiences and good practices in a framework of interregional activities, communication and stakeholder engagement. In this context, partners develop Action Plans that result in improved policy instruments supporting NMP-based innovation in each of the regions participating in the project.

### About the Action Plan of NRW Region

Each region participating in NMP-REG produces one Action Plan, providing details on how the lessons learnt from the interregional cooperation will be exploited in order to improve the policy instrument tackled within that region.

This document is the Action Plan of NRW region. The region is represented in this project by the state cluster NMWP.NRW (PP05), with the State Ministry of Economic Affairs, Innovation, Digitisation and Energy (MWIDE) as supporting organisation. MWIDE is also the responsible Managing Authority (MA) of the ERDF Regional Operational Programme (OP EFRE NRW) 2014-2020 in North Rhine-Westphalia.

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<sup>1</sup> Communication "Preparing for our future: Developing a common strategy for Key Enabling Technologies in the EU" COM(2009)512

<sup>2</sup> NMP-REG partners from Tuscany (Italy): ASEV (Agency for the development of the Empolese Valdelsa - Lead Partner); from Flanders (Belgium): FIE (Flanders Innovation and Entrepreneurship); from Norte (Portugal): CCDR-N (Norte Regional Coordination and Development Commission) and INL (International Iberian Nanotechnology Laboratory); from North Rhine-Westphalia (Germany): NMWP.NRW (NanoMicroMaterialsPhotonics.NRW Cluster); from Bucharest-Ilfov (Romania): UEFISCDI (Executive Agency for Higher Education, Research, Development and Innovation Funding) and UPB (University Politehnica of Bucharest).

The development of this Action Plan has been based on the principles of:

- i. **Interregional cooperation between NMP-REG partners:**  
Cooperation was supported by a series of interregional learning events (ILE), bilateral exchanges of experiences, study visits and share of good practices;
- ii. **Involvement of the main regional stakeholders**  
dealing with NMP R&D, innovation support and innovation delivery to regional industry:  
Participation was supported mainly through setting up a Regional Stakeholder Group (RSG), which met periodically (at least once per semester) in order to guide the project. RSG was composed by relevant innovation actors from industry, science and the financing sector as well as from regional authorities.

This document is structured in four parts. After this introductory section, the second part provides an overview of the territorial context and the policy instrument addressed by the Action Plan. The third part provides an introduction to the actions envisaged by the Action Plan. The fourth part corresponds to the main part of the Action Plan, where each action is presented, specifying its background, activities, players involved, timeframe and costs.

<b>Project</b>	NMP-REG: Delivering Nanotechnologies, advanced Materials and Production to REGIONAL manufacturing
<b>Partner organisation</b>	NMWP.NRW
<b>Other partner organisations involved (if relevant)</b>	None
<b>Country</b>	Germany
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## Part II – Policy context

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The geographical coverage of the Action Plan is the NUTS 2 region of North Rhine-Westphalia (NRW), Germany.

### About NRW region

North Rhine-Westphalia is the most populous and the most densely populated of the 16 federal states in Germany. 17.9 million people live on an area of 34,112 square kilometers. With 524 people per square kilometer, the state is more densely populated than Japan or the Netherlands. The largest cities are Cologne, Düsseldorf, Dortmund, Essen and Duisburg. The most important metropolitan areas are the Ruhr Metropolis with 5.1 million inhabitants and the region along the Rhine with more than 3.0 million inhabitants.

At 670 billion EUR, NRW generates 21.4 percent of the German GDP, putting it clearly ahead of all the other federal states (2016). The state also impresses on an international level: NRW generates 4.5 percent of the European GDP (EU-28), making it one of Europe's most important economic regions. The region's GDP is comparable with that of the Netherlands and higher than other European national GDPs such as Switzerland, Sweden, Poland and Belgium.<sup>3</sup>

The industrial companies in North Rhine-Westphalia generated around 332 billion EUR in 2016. Nineteen of the 50 highest-grossing German companies have their headquarters in NRW, among them Bayer, Henkel, E.ON, RWE and thyssenkrupp. NRW's industry accounts for around 28 percent of the state's gross value added – just under 20 per cent of Germany's gross value added.

One out of four German world market leaders comes from NRW. These include not only large, world-renowned industrial companies, but also dozens of smaller hidden champions from all sectors of the economy that are leaders in their fields of business. 751,000 SMEs form the economic backbone of the state. This broad economic base produces top achievements in the development of new products, production processes and services or in research.

Important industrial sectors include chemicals, automotive, energy, healthcare, ICT, plastics, logistics as well as, of particular importance in the context of NMP-REG, mechanical engineering & production technologies and future technologies. With its outstanding research facilities and its corporate landscape, NRW is one of the world's most competitive economic areas in the fields of nanotechnology, microsystems technology and new materials.

Almost 25 percent of the more than 1,900 actors within nanotechnology in Germany have their headquarters in NRW, far ahead of Bavaria and Baden-Württemberg with 14 and 13 percent respectively (2018). Approx. 215 institutes and universities at around 40 science locations, including 10 Fraunhofer Institutes and three Max Planck Institutes, conduct research and development in the field of nanotechnology.

NRW is a region with high materials expertise and is one of the most important locations in Germany for new materials. There are over 720,000 jobs, 200 billion EUR in sales and more than 6,000 companies and research facilities linked directly to new materials in NRW.

Mechanical engineering is a core area of the economy in NRW. With around 200,000 employees, mechanical engineering is not only by far the biggest industrial employer, but also accounts for approx. a quarter of all German enterprises in this sector with around 1,500 companies. One in five German machines is produced in NRW. At 47.2 billion EUR, it is the highest-grossing industry

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<sup>3</sup> *NRW.INVEST, Neue Chancen in Nordrhein-Westfalen (2018)*

in NRW. Numerous hidden champions develop highly specialized products in their markets, for which they are known internationally. In addition, industry and science in NRW are driving the development of Industry 4.0.

NRW belongs to the European regions with the highest density of universities and research institutions. 72 universities and universities of applied sciences are located in the region, offering more than 2,000 degree programmes for more than 768,000 students (2016). Six of Germany's ten largest universities are located in the state, including the elite universities RWTH Aachen and Cologne. Over 60 technology centers and more than 50 non-university research institutes form one of the densest research networks in Europe. Research facilities include internationally renowned institutions such as the Forschungszentrum Jülich, the German Aerospace Center (DLR), 14 Fraunhofer institutes (applied and contract research) and 12 Max Planck institutes (basic research).

### Policy instruments addressed by NRW region

The NRW Action Plan aims to impact the current North Rhine-Westphalian Operational Programme EFRE.NRW 'Investment in Growth and Jobs' 2014-2020 ([OP EFRE NRW](#)). The policy instrument is managed by the Ministry of Economic Affairs, Innovation, Digitisation and Energy (MWIDE) of the State of North Rhine-Westphalia.

The Operational Programme is based on the Regional Innovation Strategy 2014-2020 ([RIS3](#)), which merges NRW's research strategy, lead market strategy and transfer strategy into one joint concept and focuses on selected areas of activity to address today's most relevant societal challenges. The Programme aims at improving the competitiveness and adaptability of the NRW economy, creating employment and promoting integration. It therefore concentrates on four Priority Axes:

- Axis 1: Strengthening research, technological development and innovation;
- Axis 2: Improving the competitiveness of SME;
- Axis 3: Supporting measures to reduce CO2 emissions;
- Axis 4: Sustainable urban development and town planning / Prevention.

The NRW Action Plan focuses on Priority Axis 1: Strengthening research, technological development and innovation (R&D&I), more specifically on strategies and measures related to the field of nanotechnologies, advanced materials and production technology (NMP).

Name of the policy instrument addressed	Regional Operational Programme (OP EFRE NRW) 2014-2020, Axis I: Strengthening research, technology development and Innovation (NMP-relevant strategies)
Investment for Growth and Jobs programme	YES
European Territorial Cooperation programme	NO
Other regional development policy instrument	(NO)



## Part III – Introduction to the Actions Envisaged

The North Rhine-Westphalian Action Plan covers activities designed to further develop the state cluster NMWP.NRW in order to foster entrepreneurship and speed up start-up processes in NMP-REG’s priority fields of nanotechnology, advanced materials and production technology (NMP).

NMP are Key Enabling Technologies (KET) that play an essential role in the economic development of North Rhine-Westphalia, since they are innovation drivers in almost all industrial sectors and have a critical impact on the region’s lead markets. Nanotechnology, microsystems engineering, new materials, photonics, advanced manufacturing and processing are KET areas, in which the region of NRW is particularly strong and has a leading position in the national and international comparison. They therefore represent a key to the region and to the companies located therein to gain and retain competitive advantage.

Young entrepreneurs and start-ups engaging in NMP are often faced with high initial investments and long development cycles leading to a higher technical and economic risk as well as to potential bottlenecks in financing upscaling processes. Due to the high complexity of NMP, the research-to-market process can be much more difficult than in many other fields of technology and industrial application, as for example digitisation.

Apart from financing, many young NMP entrepreneurs and start-ups lack contact to existing industrial firms, including corporates, potential customers and cooperation partners. Efficient networking between these parties, however, is essential for accelerating innovation processes and for creating and developing a sustainable ecosystem for NMP entrepreneurs.

Because of this, new, more sophisticated support mechanisms tailored to the specific needs of NMP start-ups have to be developed and implemented that take into account good practices from other European regions as well as experiences and lessons learnt from successful NMP business cases.

The policy measures described in the following chapters target the support of young NMP entrepreneurs and start-ups with the long-term goal of providing a basis for a regional ecosystem for NMP entrepreneurship. All measures are based on a regional needs analysis and result from an intensive exchange of experiences with key stakeholders and innovation actors at regional as well as interregional level. Fig. 1 shows a plot of the measures tackled in the NRW Action Plan. All measures refer to cluster development and entrepreneurial support in the field of NMP.

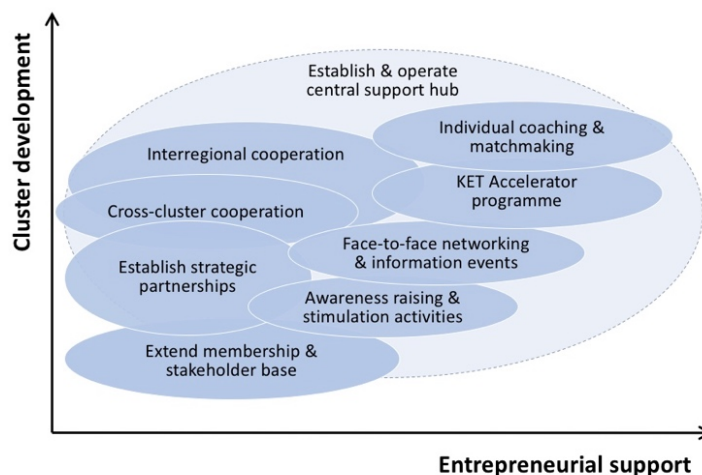


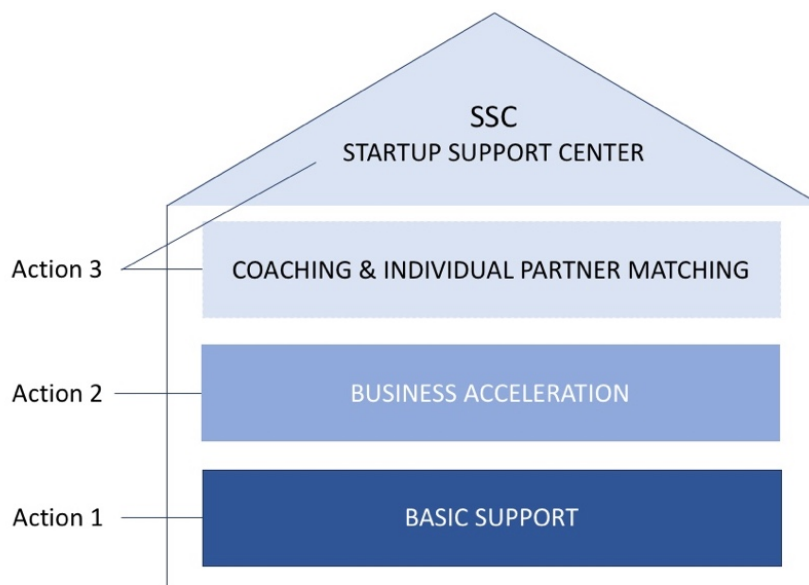
Fig. 1: Measures suggested for cluster development and entrepreneurial support.

The envisaged measures are grouped in three policy actions, which build the frame of the regional Action Plan:

Action	Title	Page
1	Set entrepreneurial support as a strategic cluster goal and introduce new basic cluster services to foster entrepreneurship with focus on NMP	9
2	Adapt and implement a regional business accelerator programme with focus on NMP	17
3	Establish a central hub for entrepreneurial support in the field of NMP with primary service offers in coaching and partner matching of NMP start-ups	26

**Tab. 1:** Actions specified in the NRW Action Plan

All three policy actions complement each other and build a ‘House of Actions’ as indicated in Fig. 2. Taken together, the actions follow an integrated approach for entrepreneurial support services in the field of NMP.



**Fig. 2:** ‘House of Actions’ of the NRW Action Plan



## Part IV – Details of the Actions Envisaged

This section presents the identified actions.

For each action there is an identification of the needs it addresses, the policy improvement it aims for, the lessons from the project supporting it, and of its activities, players, timeframe and costs.

### ACTION 1

Set entrepreneurial support as a strategic cluster goal and introduce new basic cluster services to foster entrepreneurship with focus on NMP

### OVERVIEW of the proposed policy improvement

Action 1 comprises a set of basic measures for immediate implementation, which are designed:

- to expand the existing cluster activities towards new services focusing on entrepreneurship based on or dealing with NMP technologies;
- to establish a regional support network for NMP start-ups on the basis of strategic partnerships with key stakeholders from industry, science and the financing sector;
- to raise awareness and stimulate entrepreneurship in the field of NMP;
- to improve networking between NMP entrepreneurs and industrial and capital investors.

Chance to see this implemented

High. The Managing Authority has approved this Action in line with their regional priority. No additional funding is needed. Action 1 can be carried out with existing resources through the contract of the cluster NMWP.NRW with the State Ministry of Economic Affairs, Innovation, Digitisation and Energy (MWIDE).

### NEEDS addressed

Most technology-oriented start-ups are faced with a lack of access to appropriate financing as well as a lack of contact to strategic industrial partners and customers. Especially in the field of Key Enabling Technologies this gap can cause major problems, since product development based on nanotechnology, advanced materials and production technology can be very capital-intensive. Efficient networking with relevant stakeholders from the financial and industrial sector is therefore indispensable for accelerating start-up processes and for creating and developing a sustainable ecosystem for NMP entrepreneurs.

The state cluster NMWP.NRW supports a strong regional network of innovation actors from industry, science and policy in various fields of Key Enabling Technologies and, as such, has great potential to help young NMP entrepreneurs and start-ups get connected with industrial partners and investors, but has not yet exploited this potential. There is a need and challenge to expand the present cluster activities towards new activities focusing on entrepreneurship and start-up support, including awareness raising about entrepreneurship, stimulation of potential company founders and networking with key industrial and financial players.

To introduce new cluster services as mentioned above, it is in a first step necessary to take preparatory measures in order to reach out to the new target groups and to integrate NMP start-ups into the cluster ecosystem. Furthermore, there is a need to build strategic alliances with partners from industry, science and the financing sector, who can coach, advise and support the young NMP entrepreneurs.

## Background

The needs mentioned above have been primarily identified by an expert group of regional innovation actors, who had been involved in the first five regional NMP-REG stakeholder workshops. Of particular relevance was the third regional NMP-REG workshop (Duesseldorf, June 2017) on the topic of entrepreneurial support mechanisms. 60 key actors and renowned strategists from industry, science and policy attended the workshop and discussed about needs, challenges and possible policy improvements in the field of NMP entrepreneurship in North Rhine-Westphalia. The workshop outcomes provided relevant input for drafting policy recommendations.



**Fig. 3:** Participants of the 3<sup>rd</sup> regional NMP-REG stakeholder workshop

More inspiration for defining the actions set out below was received from the interregional exchange with project partners and stakeholders during ILE 2 (Bucharest), ILE 3 (Braga), ILE 4 (Cologne) and ILE 5 (Leuven) as well as, in particular, from the Exchange Group on Entrepreneurship & Start-ups at project level. Following work in Year 1 on the regional innovation delivery categories, this group was created and coordinated by PPO5 (NMWP.NRW). Work included:

- Preparation of an initial analysis document, which not only analysed the topic of entrepreneurship from the point of view of start-ups in the field of NMP (and the various characteristics of these: high costs, long time to market), but also analysed good practices identified within NMP-REG to see which were relevant to this theme. In addition to some experiences in NRW, relevant experiences were primarily detected in Norte region / INL (International Iberian Nanotechnology Laboratory), Flanders and Romania. The support mechanisms for entrepreneurs in these regions were in the following bilaterally evaluated and, where appropriate, included to develop suitable policy measures.

- Organisation of an exchange session at ILE 4 (Cologne, July 2017) with regional and interregional stakeholders. This discussion highlighted some main points of consideration:
  - Spin-offs from universities and research centres: Support structures for graduates interested in launching their own business, including sensitization;
  - Financing instruments for entrepreneurs and start-ups: Support offered by banks (public/ private), VC investors, business angels, corporate investors, etc.;
  - Networks and innovation infrastructure: Technology centres, business incubators, other infrastructure providers, innovation clusters and local supporting networks.

The interregional exchange was completed by a desk-top research, which provided additional insight into current cluster strategies targeting entrepreneurial support at European level. The survey made clear that clusters, as part of regional policies, are important actors in support of economic development and innovation, but in practice do not yet play a relevant and active role in fostering entrepreneurship, apart from a few notable exceptions<sup>4,5</sup>. This is particularly true for politically initiated cluster programmes, which only marginally address entrepreneurial support<sup>6</sup>.

Indeed, this finding reflects very well the situation in the two NMP cluster organisations represented in the NMP-REG project, the North Rhine-Westphalian state cluster NMWP.NRW (PP05) and the Tuscan Technology District for New Materials managed by ASEV (PP01). In both cases, cluster services mainly concentrate on measures fostering science-industry cooperation (networking, workshops and seminars for the dissemination of good practice) and partly qualification.

NRW stakeholders therefore suggested to set entrepreneurial support as a strategic goal of the cluster NMWP.NRW and to establish cluster-specific measures in addition to and close cooperation with already existing support infrastructures for NMP entrepreneurs in North Rhine-Westphalia. Cluster engagement in entrepreneurial support is expected to have a strong catalytic effect on the regional entrepreneurial ecosystem in the NMP domain.

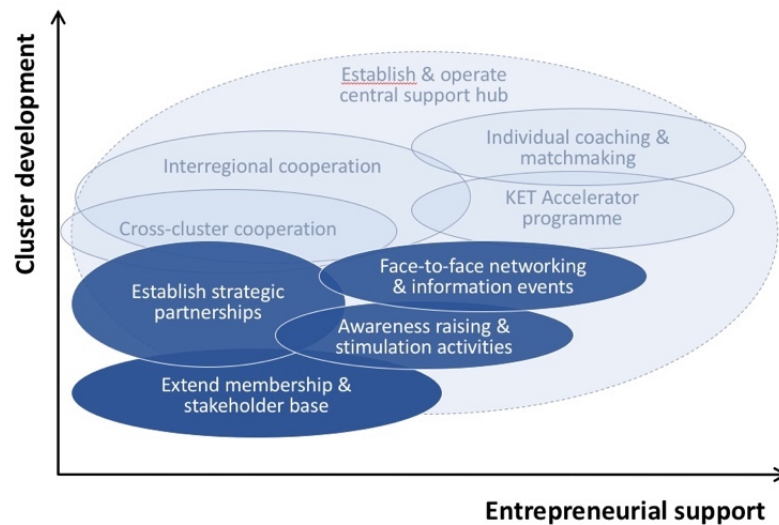
The measures of Action 1 are shown in Fig. 4 and described in detail below.

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<sup>4</sup> European Commission, *Europe Innova Cluster Mapping Project, Cluster Policy in Europe – A brief survey of cluster programmes in 31 European countries, 2008*

<sup>5</sup> European Cluster Observatory, *Cluster Programmes in Europe, 2015*

<sup>6</sup> HHL Leipzig Graduate School of Management, *Analyse des Gründungsgeschehens in Deutschland, 2016*



**Fig. 4:** Basic measures (dark coloured) for cluster development and entrepreneurial support included in Action 1.

In order to engage in entrepreneurial support, the cluster NMWP.NRW needs to reach out to and attract the main target groups - above all young NMP entrepreneurs / company founders, young academics (being regarded as potential entrepreneurs) and already existing young start-ups - to the existing cluster community, as this forms the basis for any kind of communication, dissemination and concerted actions. Because of the highly decentral and fragmented structure of the regional R&D landscape, the cluster management has to collaborate with local stakeholders and intermediaries in order to identify and get in touch with the specific target groups.

Entrepreneurial support further requires competences in different fields of business activity that cannot be covered by the cluster management alone. Strategic partners have to be involved in order to complement existing competences and fill gaps. It is therefore essential to establish a powerful and manifold regional innovation support network for start-up processes in the field of NMP, which is based on strategic alliances with partners from industry, science and the financing sector, including capital investors (banks, VC, business angels), corporates, local business support networks, incubators and technology centres, mentors, and coaches.

All activities and services described below will

- be based on existing strengths and competences of the NMWP.NRW cluster management;
- where necessary, be carried out and coordinated by the cluster management in collaboration with selected stakeholders and strategic partners;
- wherever possible and applicable, build on, extend and supplement existing support programmes at regional or local level and be implemented in a concerted action with these programmes;
- have a regional focus, but in general be open to NMP entrepreneurs and start-ups from all over the European Union with an interest in establishing a new venture in North Rhine-Westphalia in order to avoid any distortion of competition at EU level.

## Specific ACTIVITIES

Activity Number	Activity Description
A1	<p><b>Expand the existing cluster network towards NMP entrepreneurs:</b></p> <ul style="list-style-type: none"> <li>• NMWP.NRW will make use of all its communication channels (website, newsletter, journals, networking events etc.) to inform about the new cluster services in the broader public in a continuous process.</li> <li>• The cluster management will collaborate with selected stakeholders for reaching out to, scouting of and attracting the main target groups.</li> </ul>
A2	<p><b>Establish a regional start-up support network in the field of NMP and expand this network continuously:</b></p> <ul style="list-style-type: none"> <li>• A basic network of strategic cooperation partners, who can be involved to coach, advise and support young NMP start-ups, has already been established (see players involved below).</li> <li>• Roll-out in September 2019: The cooperation network will be expanded to other regional stakeholders in an ongoing process.</li> </ul>
A3	<p><b>Raise awareness about entrepreneurship in the field of NMP through all media and communication tools of the cluster:</b></p> <p>Activity A3 includes media communication measures (online, print media) aiming at informing the cluster community and a wider public about successful NMP start-ups, new public support programmes and related topics with value-added information for entrepreneurs.</p> <ul style="list-style-type: none"> <li>• Digital media: two-weekly NMWP newsletter.</li> <li>• Paper-based: 3 NMWP Magazines per year.</li> </ul>
A4	<p><b>Organise information sessions in existing networking events of the cluster to stimulate entrepreneurship in the field of NMP:</b></p> <p>Activity A4 focuses on the targeted provision of information in the framework of face-to-face networking events of the cluster NMWP.NRW in order to stimulate entrepreneurship. Networking events include:</p> <ul style="list-style-type: none"> <li>• Conferences: Biennial NRW Nano Conference.</li> <li>• Seminars, workshops: NMWP Themenabende, NMWP Zukunftsworkshop etc.</li> </ul> <p>Activity A4 is carried out in collaboration with selected stakeholders and strategic partners of the cluster in order to improve the exchange of knowledge and experiences ('lessons learnt'). Players include successful start-ups, industrial companies, investors, infrastructure providers, high-tech incubators, technology centres, IP professionals, etc.</p>
A5	<p><b>Present young NMP start-ups in existing networking and dissemination events of the cluster to facilitate communication and matchmaking with industrial partners, investors and customers:</b></p>

Activity A5 wants to support young NMP start-ups and advanced entrepreneurial teams with a NMP-based business model through active involvement as speakers in existing networking and dissemination events of the cluster:

- Conferences: Biennial NRW Nano Conference;
- Seminars, workshops: NMWP Themenabend, NMWP Zukunftsworkshop etc.

Networking events of the cluster such as the 'NMWP Themenabend' or the NRW Nano Conference are ideal platforms to demonstrate excellence and get connected with industry, investors and intermediaries / multipliers.

## Players involved

The following network of regional stakeholders and strategic cooperation partners has already been established. This cooperation network will help NMWP.NRW reach out to potential NMP entrepreneurs, organise networking and information events, and provide value-added support to young entrepreneurs and start-ups.

Name of Organisation	Role in Action Plan Implementation
NMWP.NRW	Executing organisation
NanoMikroWerkstoffePhotonik e.V., Düsseldorf	Strategic partner: Networking
CeNTech GmbH, Münster	Strategic partner: Infrastructure & networking
COPT Center, Cologne	Strategic partner: Infrastructure & networking
DITEC Düsseldorfer Innovations- und Technologiezentrum GmbH	Strategic partner: Infrastructure & networking
GATEWAY Gründungsservice, Cologne	Strategic partner: Entrepreneurial support
NRW.BANK, Düsseldorf	Strategic partner: Financing
High-Tech Gründerfonds Management GmbH (HTGF), Bonn	Strategic partner: Financing
24IP Law Group	Strategic partner: Strategic IP management

The cooperation network will be complemented step-by-step in a continuous process by involving further stakeholders engaging in entrepreneurial support, including:

Name of Organisation	Role in Action Plan Implementation
Bioanalytik Münster	Strategic partner: Networking
Dortmund Technology Center	Strategic partner: Infrastructure & networking
start2grow, Dortmund	Strategic partner: Entrepreneurial support
tu>startup, Dortmund	Strategic partner: Entrepreneurial support
TecUP, Paderborn	Strategic partner: Entrepreneurial support



ZENIT, Mülheim a.d. Ruhr	Strategic partner: Innovation management & networking
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### Risk and Contingency Plans

Description of Risk	Level of probability	Description of Contingency Plan
Too few entrepreneurs can be reached for the new cluster services.	Low	Intensify awareness raising at universities; Strengthen involvement and engagement of local stakeholders and multipliers to get in touch with young academics and university spin-offs.
Involvement of new strategic partners too difficult, because stakeholders are reluctant.	Low	Keep partnerships open and flexible to allow initially reluctant stakeholders to increase their level of commitment at a later stage.

### Timeframe

Activity Number	Time period
A1, A3	Continuous activities starting in April 2019.
A2	April 2019 – August 2019: Consolidation of already existing network of strategic cooperation partners; From September 2019: Roll-out of cooperation network to other regional stakeholders.
A4	Min. 1 event at the biennial NRW Nano Conference. Activity has already started in November 2018 with a Start-up Session at the NRW Nano Conference 2018, Dortmund, 21-22 November 2018.
A5	3x NMWP Themenabend (thematic workshop)/year.

### Costs and funding sources

The Managing Authority has approved Action 1 in line with their regional priority. **No additional funding is needed.** Activities A1 – A5 can be carried out with existing resources through the contract of the cluster NMWP.NRW with the State Ministry of Economic Affairs, Innovation, Digitisation and Energy (MWIDE). This contract is partly funded from the policy instrument (OP EFRE NRW).

Monitoring	
Monitoring tools	The monitoring of the implementation of this action will be carried out within the work of the cluster NMWP.NRW in close coordination with the Ministry. A record of the results of the indicators will be reported to the Ministry quarterly and in addition presented in regular face-to-face governing board meetings. NMWP.NRW will further prepare a final monitoring report by the end of Phase 2.
Indicators / target amounts and Means of Verification	Number of regional networking events, conferences etc. organised per year that address entrepreneurship and new innovative businesses
	Number of publications (newsletters, press releases in printed and online media, social media) with regard to entrepreneurship and start-up projects per year
	Number of NMP entrepreneurs and start-ups added to the network / ecosystem of cluster NMWP.NRW

## ACTION 2

Adapt and implement a regional business accelerator programme with focus on NMP Technologies

### OVERVIEW of the proposed policy improvement

Action 2 refers to coaching, mentoring and training of NMP entrepreneurs and tailored networking with industrial partners and capital investors.

More specific, the action addresses the interregional transfer of Good Practice from Norte to North Rhine-Westphalia in the field of NMP business acceleration, including the fine-tuning and adaptation of the Portuguese Good Practice case to the NRW context and subsequent pilot implementation of the adjusted programme in NRW.

#### Chance to see this implemented

The Business Accelerator Programme requires additional financial support. The operational budget of the cluster NMWP.NRW does not include a budget line for measures like the proposed NMP business accelerator programme.

The regional Managing Authority (MA) is interested in piloting the Portuguese expertise, after adaptation to regional needs. Thus, Action 2 includes a request for Pilot Action.

The Pilot Action will be subject to an ex-post evaluation. Depending on the outcome and success of the action, the MA will take a decision on whether to invest and fund the programme through the Regional Operational Programme (OP EFRE NRW).

### NEEDS addressed

Regional NMP stakeholders including start-ups recognised the need for improving the efficiency of networking between entrepreneurs, industrial companies and financial investors. Several entrepreneurs encountered greater difficulties to identify and attract investors and to get connected with potential customers. Those difficulties can be judged as typical for new ventures in the field of Key Enabling Technologies. A business accelerator programme with a focus on, but not limited to, NMP was considered by stakeholders as a perspective and efficient instrument to bring relevant parties together, to intensify the exchange of experience and interaction, furthermore to help the young entrepreneurs adjust and improve their business models, and finally to accelerate business development.

## Background

Accelerator programmes can add great value to entrepreneurs and young start-ups as they provide training, mentoring and networking in a well structured and condensed way. Accelerators can strongly differ from each other in terms of their key objectives, target groups, special focus area and duration. Apart from improving the business concepts of the start-ups involved in the programme, one common goal is to link up entrepreneurs and start-ups with key stakeholders from industry (e.g. corporates), financial investors, mentors, R&D institutes and business incubators.

Business accelerator programmes with a focus on Key Enabling Technologies do currently not exist in North Rhine-Westphalia. This is quite surprising, since NRW is by far the leading German region in terms of industrial presence, number of academic and research institutions, as well as number of technology and innovation centres. Accelerator programmes, so-called innovation hubs, have emerged in the area of digitalisation due to a strong demand of smart digital solutions in industry and society. These hubs, however, do not adequately reflect the needs of KET entrepreneurs.

Very recently, PP04 (INL - International Iberian Nanotechnology Laboratory), together with Startup Braga<sup>7</sup> have successfully introduced a business accelerator and incubation programme with a focus on nanotechnology, advanced materials and health technologies in the Norte region. The entire programme has a duration of about 4 months and includes a sequence of workshops and training units. Following an open call for participation and a subsequent selection process, 5-10 regional start-ups are invited to take part in a series of boot camps that give them access to mentors and workshops in different areas, helping them prepare a better pitch not only for investors, but also for partners, clients and talent acquisition.

Based on the experience of the Portuguese NMP-REG partners, PP05 (NMWP.NRW) sees great potential for launching a similar accelerator programme in North Rhine-Westphalia, and hence for interregional cooperation and the transfer of good practice.

To check the transferability of the Portuguese approach and its feasibility in the North Rhine-Westphalian context, NMWP.NRW proposes a Pilot Action that aims to adapt the Portuguese concept to the needs and circumstances of North Rhine-Westphalia and, after adaptation, to test the adjusted concept in practice.

The Pilot Action proposal already represents an adaptation of the Braga experiences, for example the pilot accelerator programme will be shorter than the one in Braga. This is for purely financial and organisational reasons. If the pilot is successful, the future programme put into place in NRW could be more similar in length to the Portuguese one.

Action 2 will be structured in two main steps:

- **Step 1:** Concept & Definition / Adaptation phase (M1 – M3):  
Joint development of a regional accelerator programme for young KET entrepreneurs, based on the Portuguese good practice and tailored to NRW needs and challenges;
- **Step 2:** Implementation phase (M4 – M12):  
Piloting a test version of the accelerator programme in NRW.

<sup>7</sup> <https://www.startupbraga.com/>

Finally, after closure of step 2 the programme will be ex-post evaluated and fine-tuned and/or extended where necessary (M13 – M14).

## Specific ACTIVITIES


Activity Number	Activity Description
B1	<p>Activity B1 comprises all measures of the <b>Concept &amp; Definition / Adaptation Phase</b> (Step 1; M1 – M3) and is a joint activity of PP04 (in cooperation with Startup Braga) and PP05. It will cover the fine-tuning of the accelerator concept and the adaptation to the NRW context, including</p> <ul style="list-style-type: none"> <li>• Identification and definition of critical success factors and lessons learnt from the Portuguese case that have to be considered when structuring a NMP accelerator programme (PP04),</li> <li>• Providing detailed information on NRW’s entrepreneurial ecosystem including an actual analysis of the needs of young NMP entrepreneurs and information on the engagement of relevant stakeholders (PP05),</li> <li>• Merging all input into a final concept ready for implementation, based on the Portuguese experience and adapted to the specific requirements of NRW region, targeting young entrepreneurs and start-ups engaging in NMP technologies (concentrating on, but not limited to nanotechnology, advanced materials and production) (PP05 / PP04).</li> </ul> <p>The partners have already undertaken a phase of exchange on the Portuguese GP. PP05 visited Braga in December 2018 to meeting with the GP owner. They have also had on-going virtual exchange since then. However, this experience from Braga emerged quite late in the exchange process, so there is still scope to learn more. Moreover, there is a difference between the theoretical exchange that characterises Phase 1 / interregional exchange and the practical support that PP05 requests in the implementation phase. The partner from Braga will be available to provide their support in each of the steps required in this stage of activities and to address together any issues that might emerge. It is relevant to the Pilot as it will offset risks and boost the chances for successful implementation. The budget allocated to PP04, who facilitates the engagement of Startup Braga, covers this support.</p> <div style="text-align: center; margin-top: 20px;">  <pre> graph LR     A["<u>NORTE</u> Analysis of successful GP"] --&gt; C["<u>NORTE/NRW</u> Joint development of programme concept"]     B["<u>NRW</u> Analysis of identified needs"] --&gt; C     C --&gt; D["Implementation in NRW"]           </pre> </div>

Fig. 5: Modules of Action 2, Adaptation Phase

B2

Activity B2 covers all measures of the **Implementation Phase** (Step 2; M4 – M12) and comprises a sequence of activities for preparing and conducting the programme:



**Fig. 6** Modules of Action 2, Implementation Phase

### **Set-up phase (M4 – M6):**

The programme will be coordinated by the cluster NMWP.NRW in collaboration with selected regional stakeholders and strategic partners. The networking and training events shall take place at different places in NRW that are well-known for their excellence and infrastructure in Key Enabling Technologies, in particular NMP. Suitable prominent locations are Dortmund, Munster and Cologne. It is intended to combine those events with company visits and guided tours to high-tech incubators and application/ pilot production centres.

Various partners and stakeholders will be identified and involved in the programme:

- NMP competence centres in NRW (application centres, high-tech incubators etc.);
- Mentors / coaches with a proven track record in NMP-related undertakings (CEOs, innovation managers, business developers, consultants etc.);
- Trainers and experts (speakers, jurors) with expertise in pitch training, business modelling, financial management, intellectual property etc.;
- Universities, research centres and intermediary bodies with a track record in NMP in order to identify and reach out to academic entrepreneurs in the field of NMP as the main target group of the programme.

### **(Technical) Event planning (M7):**

- Renting meeting rooms (PP05);
- Organising catering (PP05);
- Arranging shuttle transfers etc (PP05).

### **Programme communication / Open Call (M7 – M9):**

Efficient communication is essential for the project. A programme website will be implemented, a programme flyer developed (electronic and print version), posters and roll-up displays prepared for cooperation partners and information events. The programme will be promoted through different communication channels (website, direct mailings, social media, print media etc.) by the cluster NMWP.NRW and all partner organisations.

- Design and implementation of programme website (PP05);
- Design of logo (PP05);
- Design and print of programme flyer, poster and roll-up display (PP05);
- Programme promotion through different communication channels (PP05).



	<p>The cluster NMWP.NRW will publish an Open Call for expressions of interest, addressing the main target groups (NMP entrepreneurs from academia, R&amp;D centres, SMEs etc.). The Call has to be seen in a regional context, but is in general open to any interested party from all over the European Union.</p> <ul style="list-style-type: none"> <li>• Publication of an Open Call for expressions of interest (PP05).</li> </ul> <p><b>Assessment and invitation (M10):</b> The expressions of interest will be evaluated according to pre-defined criteria. Potential candidates will be selected and invited for participation.</p> <ul style="list-style-type: none"> <li>• Evaluation of expressions of interest received (PP05);</li> <li>• Selection of 5 - 10 candidates (PP05);</li> <li>• Invitations for participation (PP05).</li> </ul> <p><b>Conduction of the programme (M11 – M12):</b> The programme as such shall be structured in a sequence of face-to-face networking and training events within a period of max. two months and organised at different locations in NRW (see above). Each event will last one day and have one major theme that is of critical importance for NMP ventures as, for example, business modelling, financing, intellectual property, or pitch training. The events will alternate with periods of self-learning, self-improvement and reflection on the training units and exchange of experience.</p> <ul style="list-style-type: none"> <li>• Sequence of networking and training events at different locations in NRW;</li> <li>• 1 day/event;</li> <li>• One major theme/event;</li> </ul> <p>The programme shall cover networking and training modules, featuring matching events with corporates and investors, pitch sessions, mentorships, an interdisciplinary specialist jury and best team awards. For the pilot action, no monetary awards are foreseen, although this will be an option for following events in case of continuation. Programme participants will present their business concepts during the first and last event, i.e. in the beginning and at the end of the accelerator programme. They will be coached by selected mentors during the full time period of the programme. The best three teams will be selected by a jury and honoured at the end of the programme.</p> <ul style="list-style-type: none"> <li>• Mentoring/coaching by NMP experts and business developers;</li> <li>• Business pitches (before and after training &amp; coaching);</li> <li>• Selection of the three best teams.</li> </ul>
B3	<p><b>Ex-post evaluation of the programme (M13 – M14):</b></p> <p>The Pilot Action will be subject to a thorough ex-post evaluation to assess the impact and sustainability of the accelerator programme with a view of future development, modification and integration into the Regional Operational Programme (ROP). The following evaluation questions will be included:</p> <ul style="list-style-type: none"> <li>• Were target groups reached, and at what level?</li> <li>• Were expectations met and targets achieved?</li> <li>• Degree of networking and interaction between programme attendants (young entrepreneurs) and industrial partners and capital investors.</li> </ul>

	<p>Feedback will be collected on the basis of questionnaires (and if necessary by individual interviews) from the attendants of the programme as well as coaches, mentors and other stakeholders involved, addressing the following major issues:</p> <ul style="list-style-type: none"> <li>• General findings and impressions;</li> <li>• Suitability and efficacy of programme modules;</li> <li>• Suitability of the decentral programme organisation (alternating venues);</li> <li>• Suggested changes to contents of programme modules;</li> <li>• Potential extension of the programme.</li> </ul> <p>The evaluation will be carried out in close contact with the regional Managing Authority (MA). Based on the outcomes of the evaluation, PP05 will negotiate with the MA about the next steps with a view of integrating the programme into the current or successor Regional Operational Programme (ROP).</p>
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Players involved	
Players involved in adaptation process:	
Name of Organisation	Role in Action Plan Implementation
NMWP.NRW (PP05)	Executing organisation
INL (PP04)	Project partner involved in programme development
Startup Braga	External expert: Programme development, coaching and training
Players involved in implementing the programme:	
Name of Organisation	Role in Action Plan Implementation
Startup Braga	External expert / Strategic partner: Coaching and training
NanoMikroWerkstoffePhotonik e.V., Düsseldorf	Strategic partner: Networking and coaching, promotion
CeNTech GmbH, Muenster	Strategic partner: Networking, coaching, training, NMP incubation services, access to NMP infrastructure (nanotechnology), promotion
COPT Center, Cologne	Strategic partner: Networking, coaching and access to infrastructure (NMP pilot lines and prototyping)
Bioanalytik Münster	Strategic partner: Networking, cross-cluster competencies (nanotechnology, biotechnology)
GATEWAY Gründungsservice, Cologne	Strategic partner: Entrepreneurial support, coaching, training, interface to academia, scout and promotion

DITEC Düsseldorfer Innovations- und Technologiezentrum GmbH	Strategic partner: Networking, coaching, cross-cluster competencies (nanotechnology, life sciences), promotion
24IP Law Group	Strategic partner: Coaching and training with regard to strategic IP management
NRW.BANK, Düsseldorf	Strategic partner: Coaching and training with regard to financing, promotion
High-Tech Gründerfonds Management GmbH (HTGF), Bonn	Strategic partner: Coaching and training with regard to financing, promotion
start2grow, Dortmund	Strategic partner: Entrepreneurial support, business planning, coaching, training, promotion
tu>startup, Dortmund	Strategic partner: Entrepreneurial support, coaching, training, interface to academia, scout and promotion
TecUP, Paderborn	Strategic partner: Entrepreneurial support, coaching, training, interface to academia, scout and promotion
ZENIT, Mülheim	Strategic partner: Promotion, networking, innovation management
Dortmund Technology Center	Strategic partner: Infrastructure & networking
start2grow, Dortmund	Strategic partner: Entrepreneurial support
tu>startup, Dortmund	Strategic partner: Entrepreneurial support
TecUP, Paderborn	Strategic partner: Entrepreneurial support
ZENIT, Mülheim a.d. Ruhr	Strategic partner: Innovation management & networking

## Risk and Contingency Plans

Description of Risk	Level of probability	Description of Contingency Plan
Refusal of request for Pilot Action	Low	Options for alternative financing will be checked.
Action cannot be integrated into the Regional Operational Programme (ROP)	Low/Medium	Depends strongly on the success of the Pilot Action. If ROP-based funding is not possible, options for alternative financing will be checked.
Too few entrepreneurial teams can be identified for the programme in due time	Low/Medium	Increase efforts to communicate the programme at universities and R&D organisations through PR activities and targeted stimulation campaigns;

		Increase number and level of engagement of regional/local stakeholders in the acquisition process.
Potential distortion of competition	Low	The programme will be open to entrepreneurs and start-ups from all over the European Union.
Potential conflict with state aid regulations	Low	At present, no monetary awards are foreseen for the winning teams of the programme. If monetary prizes are awarded or other financial advantages provided to entrepreneurs, conformity with EU state aid regulations will be checked in order to avoid any form of direct or indirect state aid.

## Timeframe

The timetable of Action 2 is shown in Fig. 7.

NMP-REG NRW Action 2		Regional Business Accelerator Programme (Transfer of Good Practice)													
PROJECT TIMETABLE															
	MONTHS	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14
<b>Activity</b>															
<b>STEP 1: CONCEPT &amp; DEFINITION /ADAPTATION</b>															
Norte Part															
NRW Part															
Merging / Finalising															
<b>STEP 2: IMPLEMENTATION</b>															
Set-up Phase															
(Technical) Event Planning															
Communication / Open Call															
Assessment & Invitation															
Conduction of Programme															
Event 1 / Location 1															
Event 2 / Location 2															
Event 3 / Location 3															
<b>EX-POST EVALUATION</b>															

**Fig. 7:** Gantt chart of Action 2. (M1 is the first month after date of approval of the Pilot Action.)

Activity Number	Time period
B1	Adaptation of the accelerator programme: June 2019 (M1) – August 2019 (M3)*
B2	Implementation of the accelerator programme: September 2019 (M4) – May 2020 (M12)* <ul style="list-style-type: none"> <li>• Set-up phase: September 2019 (M4) – November 2019 (M6)*</li> <li>• (Technical) Event planning: December 2017 (M7)*</li> <li>• Communication / Open Call: December 2019 (M7) – February 2020 (M9)*</li> <li>• Assessment and invitation: March 2020 (M10)*</li> </ul>

	<ul style="list-style-type: none"> <li>• Conduction of the programme: April 2020 (M11) – May 2020 (M12)*</li> </ul>
B3	<p>Ex-post evaluation of the accelerator programme: June 2020 (M13) – July 2020 (M14)*</p> <p><i>*Calendar dates are based on the assumption that the Pilot Action will be approved during May 2019 or in the beginning of June 2019.</i></p>

## Costs and funding sources

Costs strongly depend on the specific priority settings and format of the programme, number of modules, number of attending start-up teams, costs for external experts and awards (optional). Typical costs (staff, admin, travel, external expertise) are in the range 100 - 250 kEUR / year (or event).

For the Pilot Action, a total budget of 86,300 EUR was calculated and requested. 73,950 EUR (corresponding to 85% of the total budget) will be the budget share of PP05.

The Business Accelerator Programme requires additional financial support. The operational budget of the cluster NMWP.NRW does not include a budget line for measures like the proposed NMP business accelerator programme.

The regional Managing Authority (MA) is interested in piloting the Portuguese expertise, after adaptation to regional needs. Thus, Action 2 includes a request for Pilot Action.

There is no further flexibility given in the present funding contract to finance the Pilot Action. However, the Pilot Action will be subject to an ex-post evaluation. Depending on the outcome and success of the action, the MA will take a decision on whether to invest and fund the programme through the Regional Operational Programme (OP EFRE NRW).

## Monitoring

Monitoring tools	The monitoring of the implementation of this action will be carried out within the work of the cluster NMWP.NRW in close coordination with the Ministry. A record of the results of the indicators will be reported to the Ministry quarterly and in addition presented in regular face-to-face governing board meetings. NMWP.NRW will further prepare a final monitoring report by the end of Phase 2.
Indicators / target amounts and Means of Verification	Number of start-up projects identified, selected and invited per year
	Number of mentors, coaches and sponsors attracted by the cluster NMWP.NRW

## ACTION 3

Establish a central hub for entrepreneurial support in the field of NMP technologies with primary service offers in coaching and partner matching of NMP start-ups

## OVERVIEW of the proposed policy improvement

Action 3 aims at launching a central organisational entity for entrepreneurial support as a strategic long-term goal of the cluster NMWP.NRW with a primary focus on the coaching and guidance of young NMP entrepreneurs and start-ups as well as on individualised partner matchings.

### Chance to see this implemented

Action 3 requires additional financial support.

The operational budget of the cluster NMWP.NRW does not include a budget line for measures like Action 3. There is no further flexibility given in the present ROP to finance this action.

Action 3 can only be implemented if an additional funding source can be identified, which does not exist yet.

Nevertheless, Action 3 shall be kept in the Action Plan as it constitutes an important part of the 'House of Actions' (Fig. 2) and will be required to follow a holistic approach of entrepreneurial support in the long term.

## NEEDS addressed

Particularly in the third regional NMP-REG stakeholder workshop (Duesseldorf, June 2017) key innovation actors identified the lack of a central hub in North Rhine-Westphalia that can provide support and coaching in a wide area of business development to young NMP entrepreneurs and start-ups. Stakeholders therefore suggested that the cluster NMWP.NRW should establish, manage and operate such a hub for NMP entrepreneurs with a central navigation and coaching function.

Stakeholders, regional as well as from other NMP-REG regions (e.g. Tuscany, where cross-cluster cooperation has also become a field of political priority), further recognised the need for a better cooperation between the different state clusters in North Rhine-Westphalia and suggested that the cluster NMWP.NRW should strengthen cross-cluster cooperation. Today, most innovations are created in overlapping areas of technologies, industries and markets. This is particularly true for NMP technologies, which contribute to the development of new products, processes and services in almost all industrial sectors. Due to the horizontal nature of NMP, both along the value chain and across different technological areas, as well as the large variety of applications in many sectors of the regional economy, a closer cross-cluster collaboration is required to optimise the support of new innovative business ideas based on or dealing with NMP.



## Background

Action 3 is an important strategic complement to Action 1 (and partly Action 2) and, as such, indispensable to attain the final goal of an integrated (holistic) approach for entrepreneurial support in the field of NMP. The action aims at establishing a state-wide central hub, the **NMP Startup Support Center (SSC)**, in order to improve the support of young entrepreneurs and start-ups engaging in NMP technologies.

At different locations in NRW, so-called innovation hubs or ‘dighubs’ have emerged in the field of digital technologies, that successfully connect start-ups and SMEs to cooperation partners, investors and experts at local level. Although these hubs usually work very efficiently, they firstly do not adequately reflect the needs of NMP entrepreneurs, and secondly, they strongly concentrate on their local ecosystems rather than innovation systems with a state-wide dimension.

The SSC will play an important role as a catalyst in implementing a regional entrepreneurial ecosystem in the field of NMP. A successful ecosystem requires an efficient networking between all stakeholders involved. To this end, the SSC shall act as a one-stop shop for entrepreneurs and start-ups looking for further support of their business ideas and concepts, but also for corporates and investors interested in new perspective NMP-related business cases.

The SSC will bridge existing support gaps in the field of NMP with a primary focus on the coaching of young NMP entrepreneurs and individualised partner matchings with financial and industrial partners. In order to provide those new value-added services, the cluster has to build capacities and expand its present portfolio of services.

The new services will include:

- First check of business concepts of young NMP entrepreneurs with regard to technological feasibility and market relevance;
- Advising, coaching and supporting entrepreneurs at strategic level (business modelling and development, IP strategies, technology marketing etc.) and operational level (fine-tuning of business plans, proposals for public funding, preparation of collaboration agreements etc.);
- Connecting entrepreneurs with potential customers, strategic partners from industry and/or R&D institutions, and investors via customised matchmakings (‘door opening’).

The question of how the SSC should be structured in order to achieve maximum impact, effectiveness and visibility has been intensively discussed with other NMP-REG partners in the Exchange Group on Entrepreneurship & Start-ups as well as at various Interregional Learning Events, above all the ILE 4 (Cologne, July 2017).

Flanders region, represented by FIE (PP02) in the project, has gained considerable experiences with their regional Strategic Research Centers (SRCs), which were established to accelerate innovation processes based on science-industry cooperation. Flanders has four SRCs (Imec, VIB, VITO and Flanders Make) that have the mission to bridge the gap between fundamental and applied research and are important actors in the transformation of the Flemish economy. Each SRC has its own specific focus. For example, Flanders Make is the regional research centre for the smart manufacturing industry, and Imec is a worldwide leading R&D and innovation hub in

micro- and nanoelectronics and digital technologies. Imec has also set up Istart, its own university-linked business accelerator programme, to support Belgian high-tech start-ups with coaching, facilities and funding. The programme offers a combination of pre-seed funding, coaching & mentoring, workshops & guidance by domain experts, as well as access to a broad network of partners and investors. Istart has become one of the most successful university business accelerator programmes worldwide.

In order to increase networking opportunities and intensify collaborations with universities, clusters and industry federations, the Flemish government has started to support their SRCs to become the Flanders-wide Single Point of Contact (SPOC) for innovation in their sector. SPOCs are a proven means to overcome (or avoid) fragmentation and to accelerate innovation processes.

Inspired by the Flemish experiences and policy strategy, it is intended to position the SSC as the **first point of contact for NMP entrepreneurs** and start-ups in NRW, thus 'giving a face' to entrepreneurial support in the region. The SSC shall be coordinated by the NMWP.NRW cluster management. All services offered to NMP entrepreneurs shall be carried out in collaboration with selected regional stakeholders and strategic partners, and wherever possible, build on, extend and supplement existing local initiatives for entrepreneurial support.

The SSC shall, furthermore, play an increasingly visible and active role at relevant regional networking events that address NMP entrepreneurship and the promotion of NMP start-ups in order to raise awareness and better reach out to young (potential) entrepreneurs, investors and other stakeholders.

The Center shall also strengthen cross-cluster cooperation at regional, cross-border and interregional level to benefit from potential synergy effects with regard to entrepreneurial support.

## Specific ACTIVITIES

Activity Number	Activity Description
C1	<p><b>Establish and run the NMP Start-up Support Center (SSC):</b></p> <p>Preparatory activities:</p> <ul style="list-style-type: none"> <li>• Identify funding source (which does not exist yet);</li> </ul> <p>In case of successful funding:</p> <ul style="list-style-type: none"> <li>• Recruit a full-time manager (or two part-time managers) with a sound track record in specific fields of NMP technologies (e.g. nano, micro, materials) and proven industrial experience, at least for a period of two years.</li> <li>• Rent office space and set up office infrastructure for the SSC manager(s). The SSC shall be located in or next to the premises of the NMWP.NRW cluster management.</li> </ul> <p>After successful start-up of the SSC:</p> <ul style="list-style-type: none"> <li>• 'Give a face' to entrepreneurial support in the field of NMP technologies in NRW:</li> </ul>

	<ul style="list-style-type: none"> <li>– (Active) participation in relevant regional networking events with regard to entrepreneurship;</li> <li>– Regular meetings with key stakeholders in the field of entrepreneurial support;</li> <li>– Organisation of NMP start-up roundtables in the region.</li> <li>• Offer coaching and other value-added support services to young NMP entrepreneurs and start-ups on a case-by-case basis, including:             <ul style="list-style-type: none"> <li>– Strategic advice;</li> <li>– Operational management support;</li> <li>– Check of business concepts;</li> <li>– Arranging on demand exploratory meetings between NMP start-ups and representatives of industrial target groups (industry leaders).</li> </ul> </li> <li>• Foster cross-cluster cooperation for the benefit of NMP entrepreneurs at regional, cross-border and interregional level;             <ul style="list-style-type: none"> <li>– Introduction of bilateral experience exchange meetings with other NRW-based state clusters at regular intervals;</li> <li>– Envisage joint networking events with other state clusters, e.g. Bio.NRW.</li> </ul> </li> </ul>
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## Players involved

The network of stakeholders involved builds on that of Action 1.

Name of Organisation	Role in Action Plan Implementation
NMWP.NRW	Executing organisation
NanoMikroWerkstoffePhotonik e.V., Düsseldorf	Strategic partner: Networking
NRW.BANK, Düsseldorf	Strategic partner: Financing
High-Tech Gründerfonds Management GmbH (HTGF), Bonn	Strategic partner: Financing
CeNTech GmbH, Münster	Strategic partner: Infrastructure & networking
COPT Center, Cologne	Strategic partner: Infrastructure & networking
DITEC Düsseldorfer Innovations- und Technologiezentrum GmbH	Strategic partner: Infrastructure & networking
GATEWAY Gründungsservice, Cologne	Strategic partner: Entrepreneurial support
24IP Law Group	Strategic partner: Strategic IP management
Bioanalytik Münster	Strategic partner: Networking
Dortmund Technology Center	Strategic partner: Infrastructure & networking
start2grow, Dortmund	Strategic partner: Entrepreneurial support
tu>startup, Dortmund	Strategic partner: Entrepreneurial support

TecUP, Paderborn	Strategic partner: Entrepreneurial support
ZENIT, Mülheim a.d. Ruhr	Strategic partner: Innovation management & networking
List to be continued.	

## Risk and Contingency Plans

Description of Risk	Level of probability	Description of Contingency Plan
No direct public funding available to finance the programme	High	Identify alternative funding sources.
Too large deal flow of start-up projects exceeding the capacities of the management team	Medium	Involve external experts / mentors; Raise level of entry qualification depending on market potential and added value for the region.
Too little deal flow of start-up projects	Low	Increase efforts to raise awareness at universities and R&D organisations through PR activities and targeted stimulation campaigns.
Potential conflict of interest between the cluster and local / regional support organisations	Low	Partnership agreements with local / regional support organisations will be based on mutual trust and cooperation on agreed goals. In case of a conflict of interest partners will try to find a compromise that provides optimum support for the entrepreneurs / start-ups involved.
Potential distortion of competition	Low	All services offered will be open to entrepreneurs and start-ups from all over the European Union.
Potential conflict with state aid regulations	Low	For all actions envisaged, conformity with EU state aid regulations will be checked on a case-by-case basis to avoid any form of direct or indirect state aid. Networking and initial consulting services will be offered free of costs, whereas in-depth customised consultation will be subject to de minimis rules and charged on the basis of usual market prices.

## Timeframe

Activity Number	Time period
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C1	<ul style="list-style-type: none"> <li>• Launch phase incl. staff recruiting, office set-up etc.: June 2019 (M1) – December 2019 (M6)*;</li> <li>• Start-up of full operation in January 2020*.</li> </ul> <p><i>*Only valid in case that a successful funding of Action 3 has been realised.</i></p>
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## Costs and funding sources

Action 3 requires **additional financial support**.

Expected costs amount to 200 – 250 kEUR / year, including staff costs, infrastructure/ admin costs, travel costs and equipment costs.

The operational budget of the cluster NMWP.NRW does not include a budget line for measures like Action 3. Due to the fact that no further flexibility is given in the present Regional Operational Programme (OP EFRE NRW) to finance this action, Action 3 can only be implemented if an additional funding source can be identified, which does not exist yet. The cluster NMWP.NRW will continue to screen other funding options, also with a view of getting the action integrated into the next ROP.

## Monitoring

Monitoring tools	The monitoring of the implementation of this action will be carried out within the work of the cluster NMWP.NRW in close coordination with the Ministry. A record of the results of the indicators will be reported to the Ministry quarterly and in addition presented in regular face-to-face governing board meetings. NMWP.NRW will further prepare a final monitoring report by the end of Phase 2.
Indicators / target amounts and Means of Verification	<p>Number of start-up projects accompanied and supported per year</p> <p>Number of events (conferences, workshops etc.), which have been attended by the SSC, or in which the SSC has played an active role</p>

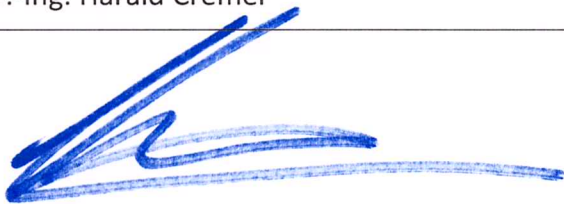
## Abbreviations

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ASEV	Agencia per lo Sviluppo Empolese Valdelsa (Lead Partner, PP01) <i>Agency for the development of Empolese Valdelsa</i>
CCDR-N	Comissao de Coordenacao e Desenvolvimento Regional do Norte (Project Partner, PP03) <i>Northern Portugal Regional Coordination and Development Commission</i>
EFRE	Europäischer Fonds für Regionale Entwicklung <i>European Regional Development Fund (ERDF)</i>
FIE	Flanders Innovation and Enterprise (Project Partner, PP02) <i>Vlaamse Agentschap Innoveren en Ondernemen (VLAIO)</i>
ILE	Interregional Learning Event
INL	International Iberian Nanotechnology Laboratory (Project Partner, PP04)
KET	Key Enabling Technology
MA	Managing Authority
MWIDE	Ministerium für Wirtschaft, Innovation, Digitalisierung und Energie des Landes Nordrhein-Westfalen <i>Ministry of Economic Affairs, Innovation, Digitisation and Energy of the State of North Rhine-Westphalia</i>
NMP	Nanotechnologies, advanced Materials and Production technology
NMP-REG	Project acronym: <i>Delivering Nanotechnologies, advanced Materials and Production to REGional manufacturing</i>
NMWP.NRW	Cluster NanoMikroWerkstoffePhotonik des Landes Nordrhein-Westfalen (Project Partner, PP05) <i>Cluster NanoMicroMaterialsPhotonics of the State of North Rhine-Westphalia</i>
NRW	North Rhine-Westphalia
PP	Project partner
RIS3	Regional Innovation Strategy on Smart Specialisation
ROP	Regional Operational Programme
RSG	Regional Stakeholder Group
SPOC	Single Point of Contact
SRC	Strategic Research Centre
UEFISCDI	Unitatea Executiva pentru Finantarea Invatamantului Superior, a Cercetarii, Dezvoltarii si Inovarii (Project Partner, PP06) <i>Executive Unit for Financing Higher Education, Research, Development and Innovation</i>
UPB	Universitatea Politehnica din Bucuresti (Project Partner, PP07) <i>University Politehnica of Bucharest</i>



**Official Signature(s)**

Date:	DD/MM/YYYY 29/08/2019
Organisation (German)	NMWP.NRW c/o NMWP Management GmbH
Organisation (English)	NMWP.NRW c/o NMWP Management GmbH
Name	Dr.-Ing. Harald Cremer
Stamp and signature	


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**NMP-REG Action Plan**  
Letter of Endorsement

29. August 2019

Seite 1 von 1

Aktenzeichen

(bei Antwort bitte angeben)

81.06.23.-14 Cluster NMWP

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As the relevant organisation responsible for innovation and cluster policy, the Ministry of Economics, Innovation, Digitisation and Energy of the State of North Rhine-Westphalia (MWIDE) has from the beginning committed to support the Interreg Europe project NMP-REG and confirmed to consider possibilities for implementing the Action Plan through the regional policy instrument.

All activities within Phase 1 of the project have been carried out in close consultation and with the support of the Ministry. The Ministry has further been actively involved in the Regional Stakeholder Group of NMP-REG, thus being able to follow and contribute to the project and always being aware of the quality of the project outputs.

The Action Plan results from a fruitful interregional cooperation and reflects the findings of the Regional Stakeholder Group. All actions defined in the Plan constitute measures that promote innovation delivery and entrepreneurial support in the technology areas addressed by NMP-REG, in particular, nanotechnologies and advanced materials, which play an important role in the development of our regional economy.

Against this background, the Ministry, as the Managing Authority of the Regional Operational Programme (OP EFRE NRW), expresses its endorsement of the Action Plan submitted by the cluster NMWP.NRW in the context of the project NMP-REG.

Yours sincerely,

(Dr. Norbert von Thienen)

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