

STEPHANIE

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STEPHANIE directs regional research and innovation policies towards photonics-based space technologies to address today's grand societal challenges.

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An interregional cooperation project for improving innovation delivery policies.

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

Project partner: NMWP.NRW



Research & innovation



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Part I – General Information

About the STEPHANIE Project

Space technologies based on photonics are considered as one of Europe's areas of key industrial competence. They have huge potential to address a number of today's grand societal challenges, in particular health and wellbeing, climate action and secure societies. However, this potential will be wasted if public policy fails to address the gap between space research and its application on the ground. A long-term challenge is to ensure that R&I investments exploit the opportunities offered by space technologies (e.g. huge availability of data and signals) by ensuring that applications and services are produced to address societal challenges and that they reach the market.

Recognizing the role played by EU regions in space policy, both in strategic development and territorial impact, STEPHANIE brings together 8 partners from 7 areas to exchange knowledge on how to ensure that policy is designed to guarantee real benefits from space technology based on photonics, particularly in space and earth observation.

Partners have recognized two pillars that their ERDF policy instruments can focus on to support this R&I delivery:

- Using quadruple helix cooperation along the technological value chain at regional and interregional level;
- Coordinated and simplified funding schemes for the development of marketable and society orientated products and services.

Partners and regional stakeholders cooperate over three years of interregional learning, leading to regional Action Plans that detail concrete measures for policy improvements. They continue to cooperate while implementing these measures, using interregional exchange for further stimulus and monitoring.

Policy changes will deliver long-term impact to regional competitiveness and socioenvironmental wellbeing, thanks to collaborative innovation and innovative products addressing socioenvironmental needs. They will open new markets for enterprises and improve capacity of regions to direct European space policies and strategies.

About the Action Plan of NRW Region

Each region participating in STEPHANIE produces one Action Plan, providing details on how the lessons learned 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.

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

i. **Interregional cooperation between STEPHANIE 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 Space and Photonics R&D, innovation support and innovation delivery to regional industry:

Participation was supported mainly through setting up a Regional Space and Photonics Innovation Actors Group (SPIA), which met periodically (at least once per semester) in order to support the project. SPIA 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.

Project	STEPHANIE: Space Technology with Photonics for market and societal challenges
Partner organisation	NMWP.NRW
Other partner organisations involved (if relevant)	None
Country	Germany
NUTS2 region	NRW
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Part II – Policy context

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

About NRW region

North Rhine-Westphalia represents with a GDP of 645,6 bn € (2015) Europe's economic powerhouse. In the programming period 2007-2013 NRW received 1.3 billion EUR from the ERDF. The overall volume of the programme was about 2.5 billion EUR (ERDF, state funds, private funds). These figures are continued in the ERDF period 2014-2020: 2.4 billion overall volume of which 931 Mio. EUR are earmarked for support to innovation. NRW has a strong focus on key enabling technologies supporting its 8 lead markets (Life Sciences, New Materials, Public Health, Energy & Environmental Technologies, Mobility & Logistics, Engineering, ICT, Media & Creative Industries) and more than 560 stakeholders in the field of photonics.

The research network in NRW is one of the densest in Europe and provides ideal conditions for technology transfer. The German Aerospace Centre (DLR) is headquartered in Cologne with further locations in Bonn and Jülich as well as the European Aviation Safety Agency (EASA). The RWTH Aachen University operates 7 departments linked to aeronautics and space technology.

The regional innovation strategy promotes smart specialisation in domains with significant socioeconomic impact and research on implementation-oriented solutions to societal challenges.

Despite NRW's focus on translational research infrastructures and its transfer strategy, the results of these efforts are still below average. For example, in NRW the number of company foundations in the high-tech sector is moderate, R&D investments per capita are significantly lower as are the number of innovative SMEs collaborating with others and SMEs introducing product or process innovations compared to other industrialised regions in Germany.

In addition, company expenditures for high-tech equipment and high-grade technology are below the national average. A further quadruple helix focus could be of benefit here, as could the focus of the STEPHANIE project on combined and simplified funding schemes.

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 instrument 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 space technologies and photonics.

Name of the policy instrument addressed	Regional Operational Programme (OP EFRE NRW) 2014-2020, Axis I: Strengthening research, technology development and Innovation
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 NRW lead market strategy, as part of the NRW Innovation strategy within the regional operational programme OP EFRE NRW is based on the fundamental idea that only on the basis of an efficient and innovative industry and the associated production-oriented services, as well as with qualified, motivated and efficient employees in good employment conditions, can the far-reaching changes in society and the major global economic and ecological challenges be successfully met.

A culture of innovation geared to this makes it necessary to set priorities and concentrate on globally growing lead markets, especially those in which NRW has particular strengths and specialisation advantages, particularly with regard to science and industry, and in which ecological necessities are also taken into account.

With the establishment of 16 technology and industry clusters, the state government has therefore already set the course for intelligent specialisation at the beginning of the past decade, based on empirical foundations. Clusters are therefore a pivotal instrument of the state’s strategy. They

- act as a **link** between science, industry and politics
- are a key element in **identifying** emerging technologies
- **promote innovation and visibility** in 8 exceptionally strong lead markets in terms of a policy of “strengthening strengths”
- are expected to **develop cross-regional initiatives** both in enterprises and universities to **increase the dynamics of innovation**.

For the state clusters, this means orienting themselves towards implementation in the lead markets in the sense of strengthened cross-innovation approaches. The first priority allocation of clusters to lead markets, as shown in the following figure III.1, was carried out. In addition, however, further combinations are conceivable depending on the problem/topic.

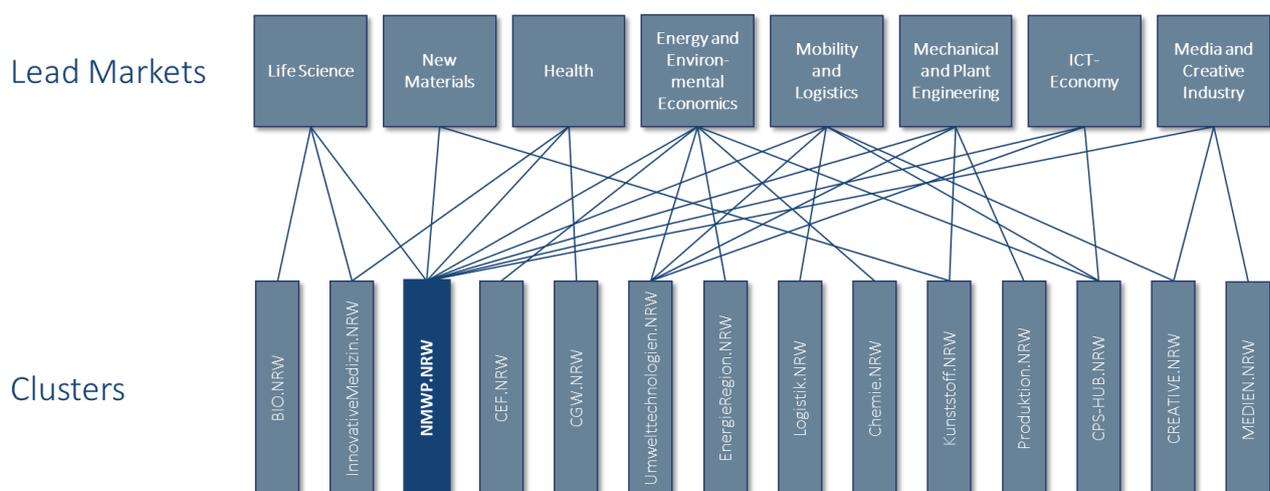


Fig. III.1 NRW Lead Markets and Clusters

Research for sustainable development, geared to the major challenges, requires efficient and sustainable European and international networking. For this reason, greater participation of North Rhine-Westphalian research alliances and clusters in European programs is being sought at the same time.

The aerospace sector, covered by the STEPHANIE project, did not have its own cluster or lead market when the programme NMWP.NRW was created. The sector is therefore divided into different lead markets (Mobility and Logistics and Mechanical and Plant Engineering) and clusters NMWP.NRW, Produktion.NRW (engl. Production.NRW), Umwelttechnologien.NRW (engl. Environmental Technologies.NRW).

At the moment, however, the aerospace sector is in a phase of major upheaval. In addition to traditional state institutions (such as ESA, NASA, DLR, etc.), private companies (such as SpaceX, etc.) are increasingly becoming involved in this sector. At the same time, new business models are being developed for data obtained with the help of space travel, in particular earth observation satellites, from determining the position of navigation systems to determining the maturity of crops and exploiting mineral resources. Therefore, research and industry have increasingly called for an independent representative for the sector in order to best present the existing potential.

With the participation in the STEPHANIE project, the field of aerospace technology was addressed for the first time by the Cluster NMWP.NRW. Hereby and with support of the MWIDE, the cluster has established a contact to the national space agency. Furthermore, the cluster has been invited to participate in the 6-month project KaRA (catalogue of aerospace actors) in the second half of 2017 in order to represent the region of NRW. The project focused on the mapping of relevant stakeholders in aerospace technology. So, the cluster has been influenced by the STEPHANIE project and has obtained a first mapping of relevant regional stakeholders that could be addressed for the regional SPIA meetings.

With the same leader of the consortium (BavAiria e.V.) an evaluation of the Supply Chain Excellence (SCE) within the aerospace sector was carried out from March to May 2019. So, the NMWP.NRW cluster has carried out first activities to establish itself as a contact point for the aerospace technology within the ecosystem in NRW.

In accordance with the Ministry of economic affairs, the state cluster NMWP.NRW should, as a first step, strengthen economic development and accelerate the transfer of innovation from key enabling technologies to the aerospace industry as a new focal application sector in North Rhine-Westphalia. In a second step, it is planned to establish an independent Aerospace.NRW cluster.

The experience and activities of the STEPHANIE partners will be drawn upon here. In particular, Good Practices in the aerospace sector have been identified in various partner regions (Spain, Belgium, UK). Further ideas and visions have been collected from other partner regions (France, Italy) that will be considered for integrating into the regional Action Plan.

The policy measures described in the following chapters aim at supporting enterprises, in particular SMEs, and research institutions with the long-term goal of creating a regional ecosystem for aerospace. All actions are based on a regional needs assessment and result from an intensive

exchange of experience with key stakeholders and innovation actors at regional and interregional level. The first step (Action 1) will be the establishment of an aerospace community in NRW. This should overcome the current situation that many companies, working in this sector, are still working independently from each other. This action addresses therefore the industry and science part of the quadruple helix.

To ensure a long-term success of this process, a governmental support is important. Not only financial, but also ideally and strategic support strengthens the efforts of Action 1. For this reason, the action 2 for introducing aerospace as relevant topic of the regional innovation strategy is a strategic action to support the activities of the first action and embeds the political and societal parts of the Quadruple Helix.

Both actions together enable the establishment of an Aerospace cluster in NRW to bring all four parts of the Quadruple Helix together to ensure a sustainable and successful process.



Fig. III.2 Three step approach for Aerospace.NRW

Action	Title	Page
1	Establish an aerospace community in NRW	10
2	Introducing aerospace as relevant topic of the North Rhine-Westphalian innovation strategy	17

Tab. 1: Actions specified in the NRW Action Plan

Part IV – Details of the Action 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

TITLE: *Establish an aerospace community in NRW*

1. Overall Topic and Description of the proposed Policy Improvement	
Overall Topic	<i>Establishing a regional aerospace community in North Rhine-Westphalia (NRW) of universities, research institutes and companies to strengthen their competitiveness within the aerospace and photonics technology sectors.</i>
Specific Description	<p><i>North Rhine-Westphalia lacks major space companies such as Airbus DS, Ariane and OHB. NRW is therefore not regarded as a leading location in aerospace technology and development. Nevertheless, NRW is home to numerous universities, research institutes and companies that develop and produce components and systems for aerospace. In order to strengthen their visibility and competitiveness, it is necessary to establish a networking community for this sector. Influenced by the experiences made in phase 1 of the Stephanie project various activities are planned to promote both horizontal networking and vertical networking along the value chain.</i></p> <p><i>In particular is mentioned here:</i></p> <p><i>The stakeholder mapping, which has been started in the KaRA project during phase 1, will be intensified and will include a categorization which will be oriented to an existing one of the Stephanie partner Durham to ensure a comparability.</i></p> <p><i>B-to-B events will be organized to foster the community building of the relevant stakeholders. A highlight will be the annual “Day of the German Aerospace regions” of the</i></p>

German Aerospace Industries Association (BDLI) with a regional partner. After many years this event will take place again in NRW supporting the regional efforts. Hereby experts from science and industry come together to present and discuss current developments by lectures and a table-top exhibition. Another important point of this action is the exchange with other sectors. NRW's particular strengths lie in chemistry and materials (including steel and plastics) as well as their processing. Networking the aerospace community, especially with material technology companies that are not yet active in the aerospace sector, should give them an access to this aerospace sector and thus strengthen the community as a whole. The experiences of Brittany with their B-to-B events (GP) is a good starting point structuring the agenda of this event.

Especially for SMEs, not only networking is important, but also access to projects and financial support. Based on the mapping, the stakeholders will be addressed directly and provided with information on relevant calls. A link to potential project partners will be established and a pre-evaluation of the proposal can also be done on request. The activities of the Tees Valley university (Durham GB) form the basis of this.

2. Need addressed

Many technology-oriented SMEs are faced with a lack of access to appropriate financing as well as a lack of contact to industrial or research partners and customers. Especially in the field of Key Enabling Technologies this gap can cause major problems, since product development can be very capital- and time-intensive. Efficient networking with relevant stakeholders from the research and industrial sector is therefore indispensable for accelerating technology and knowledge transfer and for creating and developing a sustainable ecosystem.

In 2017 a first rudimentary desktop research has been carried out to identify relevant space actors in North Rhine-Westphalia for the SPIA meetings. This has been done as part of the project Catalogue of German Space Actors (KaRA) and is a direct consequence of the cluster's participation in the Stephanie project.



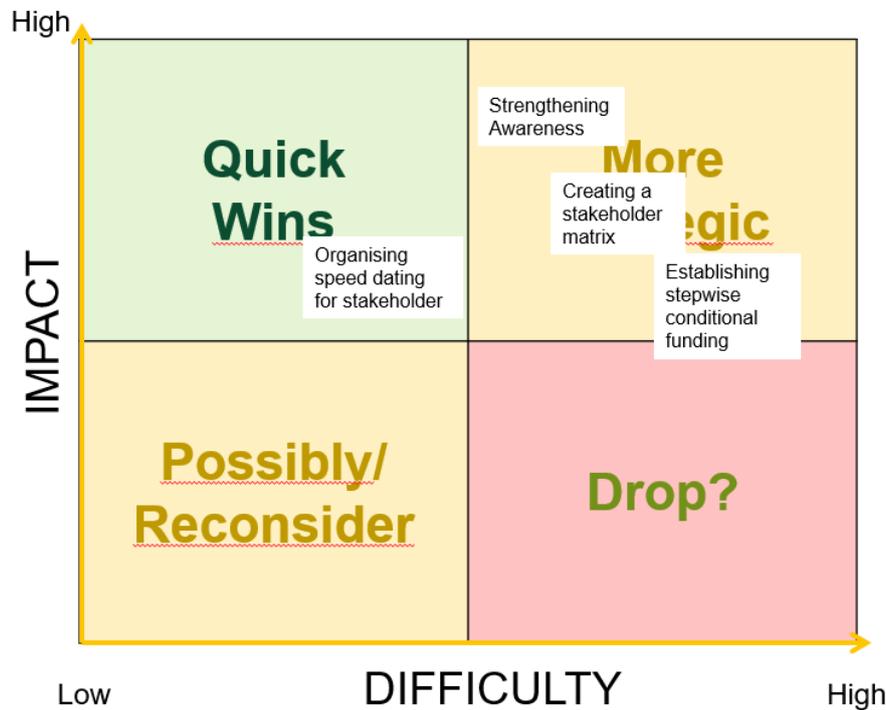
First map of Space actors in North Rhine-Westphalia for the Catalogue of German Space Actors

The desktop research revealed that a not negligible number of NRW-based technology-driven companies deliver components and systems to the aerospace sector. But they are not really visible as part of the aerospace sector because this sector is only one to which they deliver their products and services.

To overcome this, there is a need and challenge to expand the present NMWP.NRW cluster activities towards the new community (aerospace), including awareness raising about market potential and challenges for companies and research institutes.

The regional SPIA meetings have been used as a starting point to retrieve information about needs and challenges of relevant stakeholders from academia, industry and politics to strengthen the technological competitiveness of the region as a whole and the stakeholders in special. The most important and most mentioned point was the possibility to obtain more

information about other stakeholders and possibilities for co-operations and the demands of system integrators.



Four most important topics raised by stakeholders as key issues at the SPIA meetings.

During the first two SPIA meetings on 22 June 2017 and 4 December 2017 in Düsseldorf, the participants from science and industry expressed various actual weaknesses:

- The visibility of the community is too low.
- SMEs lack an overview of potential cooperation partners and other actors.
- There are high barriers to entry e.g. by regulations, standards and needed certifications.
- Space technology is not a target market for regional tenders within the framework of the OP EFRE NRW.
- SMEs lack the know-how to apply for tenders.

The exchange with relevant stakeholders at various external events confirmed the statements.

3. Relevance to the STEPHANIE project

Details of proposed Policy improvement	Links with interregional input (including details of activities, good practices and knowledge shared)
The goal of this action is the establishment of an aerospace community in North Rhine-Westphalia to strengthen the competitiveness of the actors.	The exchange with the STEPHANIE partners and their SPIAs at the 3 rd (11 January 2018) and 4 th (10 July 2018) Interregional Learning Events has given rise to new ideas for measures to strengthen enterprises and research institutions. In particular, the following good practices (GPs) should be mentioned:

<p>To reach this goal the NMWP.NRW cluster will establish the aerospace sector as further application sector for the represented Key Enabling Technologies (KETs) Nanotechnology, Microsystems Technology, Advanced Materials and Photonics.</p> <p>Established networking events, public dissemination activities at trade fairs will be used as a starting point supplemented by adopted activities by the Stephanie partners.</p>	<ul style="list-style-type: none"> • “Organizing B-to-B events: technology / end user” (Brittany) The French GP is a good example of how events can be organized in order to combine two focal points of technology. On the one hand the combination of different key enabling technologies (supplier) and space technologies (customer), on the other hand photonics (supplier) and different applications in aerospace (customer). For an efficient preparation and successful event, the cooperation with networks / cluster of the complementary side is advantageous. So, the knowledge of the ecosystem will be increased by each event. • “Funding service for SMEs” (Tees Valley) Within this good practice, direct support to companies is offered to find suitable funding schemes, potential partners and preparing project proposals for funding calls by the Teesside University. The cluster is still evaluating this GP to ensure to fulfill the state aid regulations within the process of this direct support of companies. <p>In particular, the GP "Funding services for SMEs" is regarded as important for strengthening the innovative capacity of SMEs. Therefore, Dirk Kalinowski, project manager of the cluster NMWP.NRW, has met in person responsible managers of Tees Valley on 18 December 2018 to talk about experiences with this instrument to obtain more detailed information.</p>
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4. Specific Activities and TIMEFRAME		
Activity Number	Activity Description	Timing (with details)
1	<p>Mapping of scientific and industrial aerospace stakeholders</p> <p>The first basic stakeholder mapping carried out in the KaRA project will be more detailed. The categorisation of stakeholders will be oriented to an</p>	01/2020 – 06/2020

	existing one of the Stephanie partner Durham Council to ensure a comparability with them.	
2	<p>Organization and participation B-to-B events: technology / end user</p> <p>Based on the experience of the Brittany Good Practice, events will be organised with varying partners as well from NRW (vertical networking) or from other STEPHANIE partner regions (horizontal networking) to increase the visibility and competitiveness of the regional stakeholders.</p>	<p>Autumn 2020</p> <p>Organizing Event “15th Day of the German Aerospace regions” together with German Aerospace Industries Association (BDLI)</p> <p>Autumn 2021</p> <p>Organizing 1 cross innovation event with partners from traditional technologies and participating in other user sector events.</p>
3	<p>Support SMEs in the search for suitable financing instruments</p> <p>SMEs will be supported in their search for suitable funding projects, cooperation partners or external investors in accordance with state aid rules in order to make this as efficient as possible, a further exchange with Tees Valley university, based on the Durham GP should be cultivated.</p>	<p>01/2020 – 12/2021</p> <p>Identification of suitable calls for proposals (regional, national, European level)</p> <p>01/2020 – 12/2020</p> <p>Promoting action at own and partner workshops</p> <p>06/2020 – 12/2021</p> <p>Consultant of interested SMEs in accordance to state aid rules</p>
4	<p>Raise awareness about photonics & space technology through all media and communication tools of the cluster:</p> <p>This activity includes media communication measures (online, print media) aiming at informing the cluster community and a wider public about successful projects, products and services, new public support programmes and related topics with value-added information for the SPIAs.</p>	<p>01/2020 – 12/2021</p>

5. Players involved	
Name of Organisation	Role in Action Plan Implementation

Cluster NMWP.NRW	Executing organization
NanoMikroWerkstoffePhotonik e.V.	Supporting partner: Networking with stakeholder along the value chain
DLR Space Administration	Strategic partner: Funding schemes
ZENIT GmbH	Supporting partner: Innovation management and project proposal evaluation

6. Risk and Contingency Plans		
Description of Risk	Level of probability (High, Medium, Low)	Description of Contingency Plan
Too few stakeholders can be reached	Low	Intensify awareness raising at universities, companies and users along the technology value chain. Strengthen involvement and engagement of multipliers to get in touch with stakeholders from academia and industry
Potential distortion of competition	Low	All services offered will be open to stakeholders from all over the European Union.

7. Costs
All activities will 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), so there will be no additional costs.

8. Funding sources
The activities 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). As the contract is at least funded from the policy instrument (OP EFRE NRW) and the state of NRW.

9. Monitoring			
Monitoring tools <i>(description of the tools and how they will be applied)</i>		<i>The action will be monitored through the State Ministry of Economic Affairs, Innovation, Digitization and Energy (MWIDE) as part of the regular monitoring and evaluation process.</i>	
Indicators <i>NB: The indicator included in the Application Form should be reported here, as well as any other indicator deemed necessary</i>		target amounts	Means of Verification
1	<i>Number of networking events or conferences organized or participated per year that address technologies for the aerospace & photonics sector and their innovative applications.</i>	2	<i>For each event, results will be will reported to the MWIDE as part of the monthly status report.</i>
2	<i>Number of projects supported by finding suitable partners, suitable proposals, project calls, revising project proposals, etc.</i>	2	<i>For each project, evidence will be provided that shows how the STEPHANIE project influenced it.</i>
3	<i>Number of publications (newsletters, press releases in printed and online media, social media) with regard to aerospace & photonics sector.</i>	4	<i>For each event, results will be will reported to the MWIDE as part of the monthly status report.</i>

ACTION 2

TITLE: *Introducing aerospace as relevant topic of the North Rhine-Westphalian innovation strategy*

1. Overall Topic and Description of the proposed Policy Improvement

<p>Overall Topic</p>	<p><i>Aerospace should be introduced as a strategic technology or market into the innovation strategy of North Rhine-Westphalia.</i></p>
<p>Specific Description</p>	<p><i>Various activities during Phase 1 of the Stephanie Project have shown that there is a large number of actors from science and industry in the field of the aerospace sector in NRW.</i></p> <p><i>To ensure a long-term success of this process, a governmental support is important. Not only financial, but also ideally and strategic support strengthens the efforts of Action 1. For this reason, the action 2 for introducing aerospace as relevant topic of the regional innovation strategy is essential to support the activities of the first action and embeds the political and societal parts of the Quadruple Helix.</i></p> <p><i>During phase 1 the development of the new regional innovation strategy started - based among others activities - on interviews with relevant stakeholders. A first draft of an innovation strategy survey will be published in early 2020. During the development of the innovation strategy the defined goals will be discussed in strategic meetings with relevant stakeholders to gather feedback. As soon as a final version of the new regional strategy is published by the government further strategic meetings will be held to discuss relevant actions to transfer the strategy into industry and science. One major point will be the implementation of an Aerospace cluster to coordinate all actions and to establish value chains within NRW and represent to showcase NRW's expertise internationally.</i></p>

<p>2. Need addressed</p>
<p><i>At the regional Space and Innovation Actors meetings (SPIA meetings) important representatives from industry and science emphasized that there is an insufficient visibility of the aerospace sector in North Rhine-Westphalia. In particular, they also want a better support and encouragement for SMEs. Stakeholders from the region also recognized the need for better cooperation between the various networks and clusters in NRW region as well as with other</i></p>

European regions, e.g. the STEPHANIE partner regions. Today, most innovations emerge in overlapping areas of technologies, sectors and markets. This applies in particular to photonic technologies in aerospace, which contribute to the development of new products, processes and services.

Action 2 is therefore an important strategic complement to Action 1 and, as such, indispensable to attain the final goal of an integrated (holistic) approach for industry and science support in the field of aerospace technology. It serves the initiation and organization of a cluster structure within the region for aerospace technology through the cooperation of the relevant partners along the quadruple helix of science, economy, politics and society to implement the goals of the innovation strategy.

3. Relevance to the STEPHANIE project

<i>Details of proposed Policy improvement</i>	<i>Links with interregional input (including details of activities, good practices and knowledge shared)</i>
<p><i>Including aerospace technology as a relevant technology or market to the regional innovation strategy of North Rhine-Westphalia and establish a cluster structure to implement the strategy.</i></p>	<p>Knowledge share between Tuscany and NRW</p> <p>A delegation from Tuscany, led by Mr. Albino Corporale, General Director of DG for Economic Development (Region of Tuscany) exchanged views on regional funding policy with the MWIDE and Cluster NMWP.NRW in Düsseldorf and visited the Research Campus for Digital Photonic Production in Aachen at 5th and 6th June 2019.</p> <p>Knowledge shared between Brittany and NRW</p> <ul style="list-style-type: none"> • The Good Practice “Setting up a new regional Photonics Innovation Hub” was one of the starting points for the activities of the cluster NMWP.NRW to establish an independent cluster on aerospace in NRW. The experience gained by Photonics Bretagne in establishing the Innovation Hub has been helpful in determining the regional approach in NRW. •

4. Specific Activities and TIMEFRAME

<i>Activity Number</i>	<i>Activity Description</i>	<i>Timing (with details)</i>
1	Development of the regional innovation strategy	Beginning 2020

	The regional innovation strategy will be drafted by the regional government as a result of the ongoing governmental strategy process.	
2	<p><i>Strategic Meetings & Workshops</i></p> <p>It is intended to organize strategic meetings with selected industrial and scientific stakeholders as well as thematic workshops in order to get a feedback on the topics addressed in the innovation strategy. Relevant companies, research institutes and universities that are already active in this field will be addressed in order to determine the actual needs.</p>	<i>First half 2020</i>
3	<p><i>Publishing of the regional innovation strategy</i></p> <p>The regional innovation strategy will be published by the regional government.</p>	<i>Mid 2020</i>
4	<p><i>Strategic Meetings & Workshops</i></p> <p>Introduction of the new regional innovation strategy and discussions based on the feedback of industry and science. For the efficient implementation of the innovation strategy in the aerospace sector, it is necessary to create a central contact point in NRW to coordinate all activities and foster technology transfer by connecting relevant stakeholders and initiating projects.</p>	<i>Second Half 2020</i>
5	<p><i>Establishing of a cluster Aerospace.NRW</i></p> <p>In order to implement the objectives, set out in the innovation strategy, the creation of a cluster structure is envisaged. This supports the activities of the scientific and business community by coordinating with politicians and authorities.</p>	<i>First Half 2021</i>

5. Players involved	
<i>Name of Organisation</i>	<i>Role in Action Plan Implementation</i>
<i>State Ministry of Economic Affairs, Innovation, Digitization and Energy (MWIDE)</i>	<i>Executing organization</i>

Cluster NMWP.NRW	Supporting cluster preparation process
NanoMikroWerkstoffePhotonik e.V.	Networking partner with stakeholders along the value chain
DLR Space Administration	Strategic partner
DLR project executing organisation	Supporting partner for funding schemes
companies, SMEs, RTOs and universities active in aerospace sector	Giving input to relevant goals and activities

6. Risk and Contingency Plans		
Description of Risk	Level of probability (High, Medium, Low)	Description of Contingency Plan
Aerospace technology will not be included as a strategic topic of the next regional innovation strategy.	Low	Current feedback from stakeholders and politicians show a high level of interest in the aerospace technology. If the technology will not be included in the next strategy as an independent topic, the aim is to strengthen aerospace technology activities through other regional public support programmes.
Lack of finance to establish a cluster structure	Medium	Activities will be started to a lesser extent through financial support from the industrial community.

7. Costs
The activities 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).

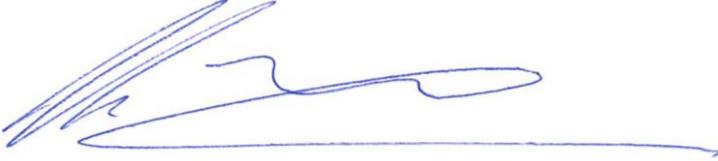
8. Funding sources
<i>The activities can be carried out with existing resources through the contract of the cluster NMWP.NRW with the State Ministry of Economic Affairs, Innovation, Digitisation and Energy (MWIDE). As the contract is at least funded from the policy instrument (OP EFRE NRW) and the state of NRW.</i>

9. Monitoring		
<i>Monitoring tools (description of the tools and how they will be applied)</i>	<i>The action will be monitored through the State Ministry of Economic Affairs, Innovation, Digitization and Energy (MWIDE) as part of the regular monitoring and evaluation process.</i>	
<i>Indicators</i> <i>NB: The indicator included in the Application Form should be reported here, as well as any other indicator deemed necessary</i>	<i>target amounts</i>	<i>Means of Verification</i>
<i>1 Regional innovation strategy for North Rhine-Westphalia with aerospace as relevant technology, sector or market.</i>	<i>1</i>	<i>Strategy published</i>

Abbreviations

DLR	<i>Deutsches Zentrum für Luft- und Raumfahrt (engl. German Aerospace Center)</i>
ILE	<i>Interregional Learning Event</i>
KaRA	<i>Katalog der deutschen Raumfahrtakteure (engl.: Catalogue of German Space Actors)</i>
MWIDE	<i>State Ministry of Economic Affairs, Innovation, Digitisation and Energy</i>
NRW	<i>North Rhine-Westphalia</i>
OP EFRE NRW	<i>ERDF Regional Operational Programme NRW</i>
STEPHANIE	<i>Space Technology with Photonics for market and societal challenges</i>
SPIA	<i>Space and Photonics Actors</i>

Official Signature(s)

Date:	16/01/2020
Organisation (German)	Cluster NMWP.NRW c/o NMWP Management GmbH
Organisation (English)	NMWP.NRW cluster c/o NMWP Management GmbH
Name	Dr.-Ing. Harald Cremer
Stamp and signature	



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STEPHANIE Interreg Europe – Action Plan
Letter of Endorsement

15. Januar 2020

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 already confirmed in the supporting letter of this project that the topic tackled in STEPHANIE is in line with the regional policy and that the Ministry will 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 (Space and Photonics Innovation Actors SPIA) of STEPHANIE, 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 community building and innovation transfer in the sector of aerospace technology based, inter alia, on photonics, which plays 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 2014-2020), endorses the Action Plan submitted by the cluster NMWP.NRW in the context of the project STEPHANIE.

Yours sincerely,

(Dr. Suveni Kreimeier)

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