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# DELIVERABLE T1.2.3

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Regional Action Plan  
for Lower Silesia (PL)

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10 2019

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## Introduction

The aim of this action plan document is to present an elaborated set of proposed innovation support actions for each of the project partner regions to ensure a sustainable transfer of InnoPeer AVM project results into the regional innovation ecosystems of Central European partner countries.

The action plan is based on former project activities and results, such as the of local framework conditions, mapping of relevant key stakeholders and analysis of strengths and weaknesses in the relevant knowledge dimensions (technologies, human resource/organisation, business model development) that were performed for each partner region and summarized in a joint benchmarking study in earlier project phases.

Further inputs for action planning result from local pilot actions that are implemented within the frame of the project for testing the multi-level InnoPeer AVM training curriculum in order to enable Central European SMEs to become part of transnational advanced manufacturing value chains.

The Action Plan itself is structured into three analytical steps: development of regional visions which describe the pursued picture of the future situation in the relevant field in a mid- to long-term perspective, the elaboration and concrete description of recommended innovation support actions to transfer and mainstream InnoPeer AVM results at the level of the partner region's innovation ecosystem in a short-term perspective and finally the presentation of conclusions from the partner region's point of view about innovation policy actions that are needed for a sustainable transfer of the InnoPeer AVM results at the transnational Central European level.

Along the action planning process all project partners undergo a peer review process which is organised in mutual feedback loops among partner organisations that join similar development goals and/or experience in the implementation of local innovation policies to support the qualification of local enterprises in the relevant knowledge dimensions that are addressed by the InnoPeer AVM project. Following this mutual exchange of experience, the final versions of the Action Plans will be developed for each partner region.

Inputs from Regional Action Plans of all Central European partner regions will finally feed into a transnational Central European Roadmap that will recommend joint innovation policy action in order to improve the qualification of SMEs in the AVM-related knowledge dimensions (technologies, human resource/organisation, business model development) in order to raise their involvement in transnational innovative value chains.

Overview of the InnoPeer AVM action planning and roadmapping process



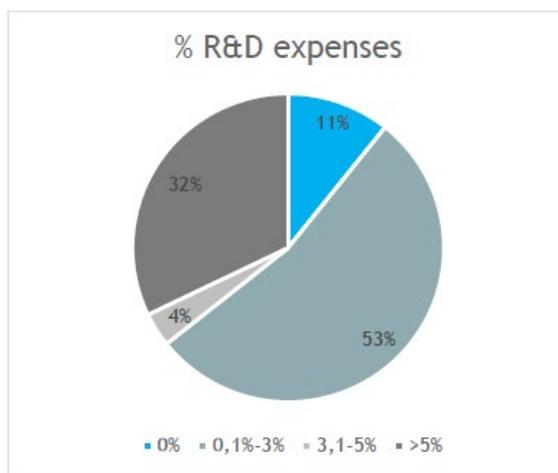


# 1. Main regional challenges and development needs

## Main Challenge #1: Achieving a high level of investing in R&D by local SMEs

### Explanation

Based on the data acquired from the survey performed among SMEs in each PP region in WP1, in Lower Silesia, one of the main barriers highlighted by the respondents was low level of investments for introducing or developing AVM technologies in respondents companies. As shown in figure (Figure 1. % R&D expenses on sales below: almost 60% of respondents invest below 5% on sales and as much as 11% do not invest in R&D at all). If this situation remains, the SMEs will not be able to participate in AVM-related value chains.



Source: DELIVERABLE D.T1.1.3 Benchmark analysis of regional strengths, deficits and AVM development needs in PP regions

This situation is caused by low awareness of the possibilities of funding, low level of knowledge about AVM technologies and also limited needs of growth. The aim is to stimulate regional SMEs to build their own long-term road map for expansion among the market and competitors with rational and affordable plan for investments in AVM technologies.

## Main Challenge #2: Achieving a large percentage of human resources in the region with high competence in the area of IoT (80-95% HR)

### Explanation

SMEs analysis conducted in the Lower Silesia region demonstrated the need to improve the competence of SMEs in the field of IoT. Low level of implementation of IoT technologies may be due to their low level of familiarity, but also to the specifics of business activity where IoT solutions can be seen as inadequate, expensive and time consuming to start using. The most significant reason is the lack of highly skilled staff available in the region of Lower Silesia.

HR IoT competences are crucial due to the possibilities of implementing advanced AVM technologies and development strategies in local SMEs. The main challenge is to secure availability of trained staff with basic knowledge in the field of IoT that can be further trained for advanced technologies usage and implementation in the manufacturing area.

## Main Challenge #3: Enforcement of regional SMEs cooperation Achieving a high level of mutual trust between SMEs in the region, which should translate into increased cooperation between companies



## Explanation

The conducted SWOT analysis based on SMEs survey responses indicated a low activity of Regional SMEs in area of supplier and customer production information integration and key partnership. Low competences related to cooperation part of business model may be motivated by lack of understanding the value of building cooperation among the local network. The SMEs are unwilling to share information with other companies, R&D entities and business support organizations as they are afraid of competition. This tendency will not allow SMEs to develop fast enough to stay important in the market. The value chain integration is crucial for performance improvement and building key partnerships ensures stronger position. Optimization and economy of scale, risk and uncertainty minimisation as well as acquisition of particular resources and activities allow to achieve AVM production environment. This is why overcoming this particular weakness of Lower Silesia SMEs has to be taken into account in regional action planning.

The challenge is to change the wrongful understanding of cooperation by regional SMEs. Moreover the action planning, other target groups such as R&D institutes, academia or business support agencies, should be involved as they should change the methods of establishing and promoting closer cooperation. The prospect of SMEs working together and with other market players should be clear and free of any types of danger of losing critical information to the competitors.

**Cooperation between SMEs should mainly concentrate on R&D activities carried out in consortium and focusing on developing new products or services of a high level of complexity beyond the possibilities of their production (or provision) by one enterprise**

The positive impact of cooperation between SMEs should be shown through examples to further encourage taking actions between different companies.

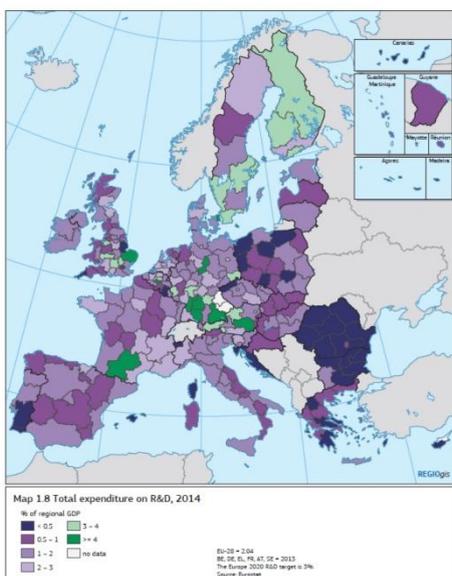


## 2. Visions

**Vision #1: 50-60% of regional SMEs will invest more than 2,5% of income in R&D in two years' time**

Explanation

Based on the data from Regional Innovation Strategy 2030 for Lower Silesia, it is clear that region is in quite good investment condition compared to other polish regions. Lower Silesia is third in the country with its overall investment amount. Between 2010-2015 investment in R&D activities grew 8%, which is much lower than national average of 26%. Lower Silesia is 7<sup>th</sup> in the country in the percentage of total investment for R&D (38,2%, where the best polish region is at 63,8%).



Źródło: Seventh report on economic, social and territorial cohesion, 2017.

Nevertheless as seen in figure above (Figure 2) Poland is one of the darkest areas on the map, which stands for the lowest investments in R&D actions. To make national and regional companies competitive, their competitiveness needs to be stimulated by introducing state of the art technologies, support of R&D actions and investments and development of higher internal R&D level in SMEs.

**Vision #2: Having more skilled and aware employees available on the market, with knowledge and skills in IoT technologies**

Explanation

In recent years, the share of innovative industrial enterprises in Lower Silesia as a percentage of all enterprises in the region was higher than the national average. Innovative enterprises for further development are in need of the most important key for Industry 4.0 - IoT technologies and HR IoT competences. As there are many solutions available already on the market, the concentration of efforts should focus on supplying qualified employees with at least basic knowledge of IoT technologies.

A systematic increase in the competences of employees available on the market should be achieved by expanding their theoretical and practical knowledge about IoT in general. The first stage is the ability to acquire data from work stations and machines equipped with appropriate interfaces. Often, many workstations have dedicated IoT functions provided by manufacturers, but they are not used by the users. The next stages will be a consequence of data collection: data processing, visualization, archiving, connection with other IT systems.



The qualification of regional SMEs in AVM-relevant key dimensions and their further participation in transnational innovative value chains, requires the provision of human resources possessing such skills. Therefore, methods for broadening employee knowledge in the field of industry 4.0 and IoT solutions should be developed.

### Vision #3: Establishing new key partnerships among SMEs in Lower Silesia region

#### Explanation

This vision assumes that meeting challenge 3, regarding trust between companies and cooperation, will result in establishing key partnerships and translating into building new business models.

Development of business model in the AVM dimension requires cooperation between market players. SMEs are the ones who need it the most to compete with big companies in the global market. Therefore, the vision of InnoPeer AVM project achievements in Lower Silesia region is the enhancement of key partnerships creation by SMEs. The information integration should be visible in stronger buyer-supplier relationships to assure reliable supplies as well in establishing strategic alliances between non-competitors. Moreover, joint ventures for new businesses creation should appear with higher frequency. The above mentioned aspects should appear spontaneously after the SMEs understand the main goals, rules and benefits of close cooperation on the market better. The successful introduction of the AVM knowledge dimension in the area of new business models should also have a positive effect on the creation of strategic partnerships between competitors, which is considered as the most difficult task.

The vision is based on information integration within the SMEs involved in InnoPeer, but also all other SMEs using help from local business support organisations or benefitting from governmental support that will start building cooperation and will be used as an examples for other companies in Lower Silesia.



### 3. Proposed actions to address the regional challenges

**Note:** The idea of an “Action” is that this will be concrete innovation support activity that could be immediately implemented in your region within the existing innovation policies and framework conditions. Actions should address the local challenges (section 1) and should be oriented towards the visionary goals that have been defined for your region previously (section 2).

Actions should be elaborated as the description of a concrete project that could be immediately discussed and implemented in cooperation with local RIS actors. Depending on the scope of the local actions you propose, you are asked to develop 1-3 actions within this Regional Action Plan. In case of more than one proposed action, single actions should address different actors (RIS stakeholders, like innovation agencies, funding institutions, educational institutes, but also your own organisation) and reach out for different target groups.

- Reference sources: Section 1 and 2 in this document, results and learnings from InnoPeer AVM pilot actions, inputs from ongoing RIS 2030 strategy process in your region
- Length of this section: approx.. 1 page per action

Guiding questions:

- What is the goal of the proposed activities?
- Who will be involved: Which concrete target groups, public business support organisations, further stakeholders and innovation actors, etc.)
- How will actions be organised? Define implementation phases and steps
- Proposed timeframe
- Potential impacts and how these could be assessed
- Required resources / budget needed
- Sustainability considerations – how could the actions be mainstreamed and/or transferred

#### Action #1: Raising awareness of the importance of investing in R&D among companies

Action Planning acc. to above guiding questions

Achieving high awareness of the profitability of investing in R&D should be achieved through training and awareness activities. However, much better results can be achieved by conducting study visits and presenting best practices. If this is not possible in the region due to fear of disclosing company talents, know-how, or a network of suppliers and business partners, it is recommended for these activities to be carried out in other regions of Europe and in other industries.

Awareness may be created mainly by providing specific knowledge to appropriate groups of people. Choosing companies which can apply AVM improvements in their companies is crucial. Sometimes we meet too many obstacles to introduce changes. The main problem is lack of funds, but also organisational hierarchy and complicated, sensitive processes. To boost investments for AVM actions we propose some trainings on:

1. Fundraising.
2. Increasing awareness about introducing AVM technologies in production sites, highlights of benefits gained with introduction of AVM technologies.
3. Practical training on modifying and development of existing technologies into AVM technologies - model factory.

All proposed actions are planned for strengthening and stimulating local SMEs to introduce AVM solutions in their companies. Involved in these action will be SMEs from the region, with focus on production companies selected in accordance with regional smart specializations - this guarantees that companies will more likely be able to raise funds from national and regional programs. It is proposed to organise training cycle with pre-qualification by examining possibilities of AVM implementation in every interested company. With this kind of pre-qualification it will be easier to find companies that can apply some changes connected with AVM in their companies. Trainings can be held at the earliest at late 2018 and early 2019. After training, the companies involved will have prepared AVM implementation plans for their companies with possible funding options. To realize these actions it is necessary to engage an external company to prepare and



conduct trainings. Training for ten companies can cost around 5000 euros. After the implementation of the prepared AVM actions in certain companies it will be possible to present them as good practice case studies. Those case studies can be published as articles in branch magazines, presented at conferences and seminars for companies and also presented at the project website.

*To be continued acc. to the number of actions proposed for implementation in your region*

**Action #2: Providing trainings for current employees in the fields of IoT, smart sensors, cloud computing, collaborative robots, etc. with theoretical knowledge and practical skills**

SMEs have a medium to high level of interest for the future improvement of human resource and organizational AVM practices. In addition, there is a medium-high level of polyvalent employees in SMEs, the flexible and multi-skilled personnel is reachable in the region, but very often hired by large companies or in management positions in SMEs. As we enter a new age of production, there is a strong need for new skills and knowledge among all the personnel, including direct production. **SMEs in need of HR IoT therefore are ready to invest into professional development of their employees. In order to make a bigger change that will be visible throughout the entire region, a free training program in the area of IoT competences will be launched for current employees of regional SMEs.** The program will be divided into two levels:

1. Basic knowledge and theoretical information dissemination for beginners.
2. Practical workshops in specific areas such as: Sensors in industrial applications; IO-Link interface - quick reconfiguration of sensor process parameters; Sensors in industrial applications according to individual customer needs, programming and design with distributed safety in somatic safety integrated s7-300 controllers.

The first trainings will start in November 2018 and will continue until the program is realised. While the interest will be higher, there is a possibility to realise the same program in a loop, but also with growth of competences more advanced courses will be prepared and introduced during the first half of year 2019.

Transferred knowledge will be assessed by a final exam at the end of each programme, but also a survey of change in HR IoT among regional SMEs is planned to be launched at the end of 2019.

The support of local governance and intermediates is expected to expand the funding for training, and more possibilities throughout the region in a longer period of time. Employees within program are also expected to be able to share knowledge with other employees within the same company in similar positions, therefore the sustainability will be achieved.

The evaluation of progress gained through the conducted trainings may be realised through surveys prepared by top managers of SMEs in order to check the actual impact on the employees' knowledge.

**Action #3: Increasing the activity in the area of key partnerships formation within local SMEs through educational programmes, workshops, advisory and acquiring funding**

The awareness of benefits of integration in the value chain and building stronger cooperation with different market players is crucial to overcome the local SMEs' reluctance and fear of sharing information. SMEs prefer to rely only on their own capabilities and forgo more effective ways of competing by cooperation only due to lack of understanding of the basic rules of how key partnerships function. The main goal of the pilot action in this case should be the dissemination of clear rules and reasons behind the formulation of key partnerships among enterprises on different levels. In order to achieve this aim, a supportive and educational program should be introduced and remain available for regional SMEs. Therefore, the following actions should be prepared and executed:

1. Increasing the awareness of benefits coming from information integration - basic trainings on key partnership building, supported with teaching cases based on experience of other SMEs (preferably from the same region).
2. Enhancement of motivation for establishing key partnerships - governmental support programs encouraging SMEs for collaboration and joint ventures (e.g. legal advisory, brokerage in partner finding, grants for innovative joint ventures).



3. Presentation of academia and business support agency capabilities in knowledge transfer to SMEs, the search for existing knowledge and research possibilities should be made easier and available and procedures more clear.

The above proposed actions should be realised in the form of open trainings for all interested entities with special preference of regional SMEs. The program can be realised as typical information dissemination, but should also be supported with workshops based on examples of good practises.

The main target group should be regional SMEs, as they have the strongest doubts about partnership creation. Additionally, the business support organisations, academia, clusters and other intermediaries, but also regional policy makers should also be included in this program. From one side, they should support and be involved in the actions, but also they should learn and acknowledge what the biggest barriers for SMEs for information integration are, and try to solve some of them.

The actions should be started as soon as possible, and continue until the desired level of cooperation is established among regional SMEs. The measurement of the level of cooperation could be the number of joint ventures for new business, recognised joint actions between SMEs and other entities, as well as the number of funding applications proposed by consortia of SMEs. These factors can be easily monitored and will verify quite accurately the level of regional cooperation.

Funding of this pilot action will not be a big issue, as there are already many different opportunities for funding SME trainings coming from local and national governmental funds, but also EU projects directed on capacity building in regions like AVM InnoPeer.

Increasing the activity between SMEs should be realised through existing regional business agencies, or in case of their lack, new agencies should be established.



## 4. Inputs for the InnoPeer AVM Strategy Roadmap

**Note:** When developing your “Actions” in section 3, please also keep in mind the intended transnational Central European dimension of the strategic results of InnoPeer AVM which will be reflected in project activity A.T1.4 (Development of a Strategy Roadmap on AVM-related capacity building and build-up of AVM value chains in Central Europe).

In this section of the Action Plan you are asked to give input from the partner region’s perspective concerning potential strategic measures to support the project goals at the transnational Central European level. Proposed measures will address a wider geographical scope for successful implementation and will probably need more preparation and substantial innovation policy changes compared to the Regional Actions proposed in section 3.

Section 4 inputs from all Regional Action Plans will be an important reference and further aggregated to a Central European level for the elaboration of the InnoPeer AVM Strategy Roadmap in follow-up project activities..

- Reference sources: former sections of this Action Plan document
- Length of this section: Headline + 1 explanation per suggested Roadmap input

### Input for Central European Strategy Roadmap #1: Improving the awareness, knowledge and use of AVM technology in SMEs

#### Explanation

There is a need in the future to enable manufacturing enterprises collaborating in global supply networks to cope with variable demands and highly complex products. These enterprises have to respond faster to demand, and supply fluctuations and increase forecasting capability on the one hand, and reduce cycle time and supply chain costs on the other. Therefore, the action 3 mentioned in the previous paragraph is a must to succeed in Lower Silesia region. Otherwise polish SMEs have no chance to survive in global competition. On the other hand, if the planned regional actions succeed, there will be more players on the market to involve in CE Strategy Roadmap realisation.

Industry 4.0 will not exist without the successful implementation of IoT solutions and the IoT technology will not be effective if there is a lack of working force with proper competences. Development of IoT labour market and its sustainability is necessary for full introduction of I 4.0 into CE manufacturing. As the methods for transformation of raw data into knowledge advance, it is becoming obvious that this increasing amount of extracted knowledge needs to be exploited in the most efficient manner. However, without a skilled labour force, the collection, analyses and use of all gathered data will not be fully possible. This is why CE Strategy Roadmap should include the introduction of widely available funds for educational programs in the area of HR IoT.

All of these actions are strictly connected with investments in R&D and complete training programs for employees. It is important to teach local SMEs how they can raise funds and how to plan investments properly. Without regular, planned investments it won't be possible to become competitive on the European markets.

### Input for Central European Strategy Roadmap #2 Increase of competitiveness and value of SMEs

#### Explanation

The result of the actions proposed above should be a significant increase in competitiveness and an increase in the value of SMEs. The increase in value will be a long-term process and will require, first of all, raising awareness about AVM issues and the knowledge of R&D. The next steps are skilful and comprehensive implementation and implementation of AVM techniques. Depending on the specifics of the business run by the company, it can last from a few to several years



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*To be continued acc. to the number of suggested inputs for the CE Strategy Roadmap*