



ACTION PLAN

SMARTY Interreg Europe Project

March 2022



Łukasiewicz

Institute for Sustainable Technologies



heart of Poland

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INTRODUCTION

Partners from regions across Europe have joined forces to exchange best practices on how policies related to Structural Funds can unlock Industry 4.0 to its full potential for their business ecosystems.

The **Smart SMEs for Industry 4.0 (SMARTY)** project has established a common basis of policy learning among its members to overcome Industry 4.0 adoption barriers through a variety of novel approaches, such as financing mechanisms, innovation hub services, digitalisation road mapping and supply-demand brokerage.

These best practices have been analysed through a project methodology that has graded such approaches based on their measurable impact in their host regions and their potential of transferability and relevance for adoption in other SMARTY regions.

GENERAL INFORMATION

Produced by each region, the **regional action plan** is a document providing details on **how** the lessons learnt from the cooperation will be exploited in order to improve the policy instrument tackled within that region. It specifies the nature of the actions to be implemented, their timeframe, the players involved, the costs (if any) and funding sources (if any).

Project Name	Smart SMEs for Industry 4.0 (SMARTY)
Partner Organisation	Lukasiewicz Research Network – Institute for Sustainable Technologies
Other Partner Organisations Involved	The Office of the Marshal of the Mazowieckie Voivodeship in Warsaw
Country	Poland
NUTS 2 Region	PL12, Makroregion Województwo Mazowieckie (Mazowieckie Voivodeship)
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Policy Context	This Action Plan aims to impact “ Investment for Growth and Jobs Programme ”
Name of Policy Instrument Addressed	European Funds for Mazovia 2021–2027 Regional Programme (actually in draft)
	Regional Innovation Strategy for Mazovia until 2030

POLICY CONTEXT

Introduction

Strategic documents that confirm the validity of competences and are crucial for the development of the economy in the Mazowieckie Voivodeship include, among others, the following:

- The Mazowieckie Voivodeship Development Strategy until 2030. Innovative Mazovia (Strategia Rozwoju Województwa Mazowieckiego do 2030 r. Innowacyjne Mazowsze).
- The Regional Innovation Strategy for the Mazovia until 2030.
- The 2020–2030 Information Society Development Strategy for the Mazovia.

Strategic documents concerning the above-referred topic at the level of the Polish economy include, among others, the following:

- The 2020 Strategy for Responsible Development (with the 2030 perspective).
- The 2030 Skills Strategy (the general and detailed parts).
- The 2030 Human Capital Development Strategy.
- The 2030 Social Capital Development Strategy.
- The 2030 Programme for the Development of Digital Competences.
- The Draft Strategy for Innovation and Effectiveness of the Economy.

The **development of competences** is recognised as a key element supporting **sustainable digital transformation**, also at the EU level, and it is the topic of, among other, the following:

- The European Skills Agenda for sustainable competitiveness, social fairness and resilience.
- The European Pillar of Social Rights (and related actions).
- The European Industrial Strategy.
- The Council Recommendation on vocational education and training.

All the above-listed strategic documents confirm that the successful development of the industry relating to modern technologies and the digital transformation of traditional industry sectors constitute a strategic development direction for Europe and Poland alike.

Moreover, in accordance with Poland's Industrial Policy of May 2021, **the support for the digitalisation of enterprises** offered as part of the cohesion policy for the 2021–2027 period is planned to include a vast array of instruments intended for industries in different regions. These instruments are to be implemented by central and regional institutions that will support digitalisation and transformation of enterprises in line with the assumptions of Industry 4.0. Their aim is to link different digital competences within enterprises (e.g. familiarity with technological trends or data use and analysis) to ensure higher effectiveness of business and production process management, and, most importantly, more sustainable energy consumption and management (including management of resources), remote

collection of product use-related data and introduction of the Product Lifecycle Management (PLM) methods, or the application of digital technologies and solutions to improve the employee and machine performance. This in turn will allow enterprises to maintain competitive advantage, continue to be a part of new value chains, better address the clients' needs, increase profits, open to new market segments, and effectively respond to the market opportunities and the need for higher product quality.¹

Poland's Industrial Policy is based on five (5) development axes, i.e.:

- Digitalisation;
- Security;
- Industrial production location;
- Green Order; and
- Modern society – adjustment of employees' competences to the labour market demand.

National Policy Triggers

Poland's Industrial Policy lists the *weaknesses and threats* relating to broadly understood competences in the economy. They concern the following:

- Expertise and capital accumulation around relatively few companies on the market.
- Low level of industry-related education in secondary schools and universities.
- ***Low pace of development of industry-related education.***
- Insufficient number of employees with technical secondary education.
- Pessimistic demographic forecasts and insufficient number of employees on the Polish market.
- Insufficient business-science cooperation at the national and international level.
- ***No investments in human capital and management systems intended for complex industrial projects.***
- Bad organisation of local enterprises.
- Absence of national tech companies able to develop high added value end products.
- Low expenditure on R&D projects and implementation of their results.

The above-listed challenges are also included in national strategic documents that are reflected in the regional programme European Funds for Mazovia 2021–2027 (EFM 2021-2027):

Aim 1. A more competitive and smart Europe by supporting innovative and smart economic transformation and regional digital connectivity – Building skills for smart specialization, industrial transformation and entrepreneurship.

Specific goal 1: Enhancing the sustainable growth and competitiveness of SMEs and creating jobs in SMEs, including through productive investment. The support will cover activities aimed at maintaining the condition of meeting the basic condition for Aim 1, including in particular activities improving innovation development systems and industrial

¹ Polityka Przemysłowa Polski [Poland's Industrial Policy], Ministry of Development, Labour and Technology, Warsaw 2021 [accessed on 02/12/2021: <https://www.gov.pl/web/rozwoj-technologia/polityka-przemyslowa-polski>].

transformation, especially the transformation towards Industry 4.0. and digitization of enterprises.

Specific goal 2: Developing skills in smart specialization, industrial transformation and entrepreneurship. Supporting and developing Mazovian innovation centres and clusters. The support will be implemented in accordance with the thematic scope indicated in the Directions of the cluster policy after 2020, e.g. through educational policy, economic promotion of the region, innovation policy, digital transformation of the national and regional economy, adaptation to the needs of Industry 4.0, and circular economy.

The Regional Action Plan refers also to an additional policy instrument: The **Regional Innovation Strategy for Mazovia until 2030** (RIS Mazovia). In this document the identified areas of smart specialisation in the Mazowieckie are listed. They include the following thematic areas for entrepreneurial discovery process (EDP):

- safe food;
- smart industrial and infrastructural systems;
- modern business ecosystem; and
- high quality of life.

The objectives of the strategy, similarly to the above-listed priority areas for smart specialisations, include the need to provide personnel and competences required from the point of view of the development of modern and innovative economy. Actions in this area should be taken at the level of the entire regional ecosystem of innovations (supporting the influx of highly qualified employees, developing the directions of development of innovative economy employees and actively promoting pro-innovation approaches) and also at the level of the ecosystem's participants (promoting business-science cooperation as regards R&D and innovation). The implementation of the RIS Mazovia is closely connected with the main objective of the Policy, i.e. "More competitive and smarter Europe ensured through innovative and smart economic transformation and regional digital connectivity," which means that the programme is focused on the areas of research, development, innovation, entrepreneurship and digitalisation, but also modelling a sustainable ecosystem supporting entrepreneurship, cooperation and innovation.

Contribution to our Policy Instrument

At the moment of the submission of the SMARTY project, it was planned to implement best practices into the Regional Operational Programme 2014-2020 for the Mazovian district. As the SMARTY project is executed during the years 2019-2022, the financial perspective of the European programmes has changed, and the aforementioned programme was ended. In 2022 a new regional programme is created. At this moment the European Funds for Mazovia 2021-2027 (EFM 2021-2027) Regional Programme is under discussion, and the final version of the programme has not been finished yet (under development). However, it was decided to try to adapt the best practices to the new terms of reference based on the programme versions which are available now. The programme was sent to the European Commission via the SFC system on the March 15th, 2022, which started the official negotiations process.

The SMARTY Regional Action Plan will directly contribute to delivery of Regional Innovation Strategy for Mazovia until 2030 (being the regional smart specialisation strategy), as shown in the further part. Good governance of national or regional smart specialisation strategy is a thematic enabling condition for a priority outlined in the **European Funds for Mazovia 2021-2027 Regional Programme (EFM 2021-2027)**, *Priority 1: “European Funds for more competitive and smarter Mazovia”*. Amongst the criteria for the condition there are actions to support industrial transition. As the condition’s fulfilment will be verified during the whole programming period, delivery of RIS Mazovia and EFM 2021-2027 are strictly intervened.

The Plan will also indirectly support EFM 2021-2027 *Priority 7: “European Funds for modern and accessible education in Mazovia”*, which indicate a required development of competences in enterprises in the areas concerning smart specialisation, digital and zero-emission industrial transformation, R&D, and innovation implementation. The need to improve the qualifications and retrain people employed in the region stems from the necessity to fill the gap between the demand for qualified personnel with relevant digital skills and the understanding of principles governing business operations in Industry 4.0, and the availability of the required skills on today’s labour market.

The actions proposed in this Regional Action Plan will contribute, among others, to:

- Create a monitoring system aimed at the aspects of digitalisation, education and Industry 4.0.
- Raise awareness on the need for the improvement of digital qualifications.
- Raise awareness on the need to improve the knowledge on Industry 4.0.
- Improve qualifications and competences in the area of the submission of the project proposals in the areas of Industry 4.0 and digitalisation.
- Improve the competences in writing the project proposals in aforementioned points.

LEARNING FROM PHASE I OF THE SMARTY INTERREG EUROPE PROJECT

Good practices identified in the SMARTY project will enable the collection of practical solutions and guidelines in the form of a **Guidebook for MSMEs** in the Mazowieckie Voivodeship concerning digital competences that will support them in drafting project proposals to be submitted to programmes planned in the EU programming period 2021-2027, that will take the needs of the Mazovia into consideration. The guidebook will include self-assessment tools to evaluate organisation’s readiness and to prepare better Industry 4.0 projects. The guidebook will be made available in the EFM 2021-2027 and RIS Managing Authorities online resources to help SMEs to prepare for the calls for applications. The RIS Mazovia stakeholders will be included in the process of preparation of the Guidebook as well as its potential future users.

EFM 2021-2027 Priorities	Good Practice
Priority 1: European Funds for more competitive and smarter Mazovia	<ul style="list-style-type: none"> • Industry 4.0: Support to acquire I4.0 Audit services, Tuscany (Italy) • Improving SMEs Competitiveness Policies Skills for Growth, United Kingdom, Leeds Region (West Yorkshire, UK)
Priority 7: European Funds for modern and accessible education in Mazovia	<ul style="list-style-type: none"> • The digital Innovation Hub and Competence Centre in Tuscany – a network deploying innovation 4.0 in the Region (Italy) • Digital Apprenticeships in Yorkshire (UK) • Gate 4.0, Tuscany Region (Italy)

We have taken away the following lessons from SMARTY Interreg Europe Project good practices presented during Phase I of the project:

- Italian good practice (Semester 3): **“The digital Innovation Hub and Competence Centre in Tuscany – a network deploying innovation 4.0 in the Region”**, Tuscany Region, Italy, Prato Municipality. The above includes “The ARTRES 4.0. – Competence Centre”, i.e. a competence centre that provides Industry 4.0-related training in Tuscany, Italy. ARTES 4.0 promotes and popularises skills required for the digital transformation through training courses and lectures (offered also in the e-learning form). Moreover, the Centre provides access to demonstration technological lines and real applications in educational laboratories. ARTES 4.0 monitors the market and business and offers specialised training courses in digital technologies addressing their particular needs. The Competence Centre is in fact a network composed of universities and research organisations, companies, foundations, and affiliated digital centres that provide expertise, skills and capabilities from different industries. The Centre focuses mainly on the identification and mapping of competence gaps to tailor the educational offer to the needs of local companies. Lukaszewicz Research Network – Institute for Sustainable Technologies and the Office of the Marshal of the Mazowieckie Voivodeship in Warsaw also see the **need to analyse the competence demand** in enterprises to tailor the educational offer to their actual needs, while taking into consideration the skills required for the digital transformation, as well as the **possibility to employ tools for the assessment of technology readiness and level of digital competences of enterprises** before the implementation of digital solutions, and their monitoring in the course of changes resulting from the digital transformation and correlated with the existing Polish and European solutions. Good practices identified in the SMARTY project (and listed above) by the Project Partners also helped define the thematic scope of the **Guidebook for MSMEs in the Mazowieckie Voivodeship concerning digital competences**. One of the topics to be covered in the said guidebook will concern a **roadmap of digital competences for MSMEs in the Mazowieckie Voivodeship**

that will refer to gaps in competences of the intellectual capital and to the business digital transformation in the region.

- **Industry 4.0: Support to acquire I4.0 Audit services, Tuscany Region, Italy, Prato Municipality** (Semester 2) – with the funds available, MSMEs in Tuscany were offered the Audit and 4.0 potential assessment service that enabled them to identify the level of advancement of their digital transformation and carry out an in-depth analysis of digital competences of their employees. This service allowed Tuscany-based companies to: build awareness of benefits stemming from the use of digital solutions in enterprises (regardless of their size); promote the technological, organisational and socio-economic value resulting from the introduction of Industry 4.0; identify competence gaps, define the scope of necessary technology-related and vocational training courses necessary for the digital transformation; identify the needs concerning the digitalisation of manufacturing and business processes and the required technological solutions; get assistance concerning the implementation of digital technologies to better compete on the market and be included in newly created supply chains; and assess the impact of the implementation of Industry 4.0 on their operations, development, organisation of work and performance. The project provides detailed information on digital transformation in the region and constitutes the basis on which necessary support tools may be developed. The GP in question is very interesting and it provides tools for the assessment of technology readiness, innovation absorptivity and potential of MSMEs that are also in demand in the Polish industry.
- **Digital Apprenticeships in Yorkshire, England** (Semester 5): Apprenticeships as a solution to achieve new industrial competences required on the labour market. The UK government decided to introduce a new Apprentice Standard that replaces the UK Apprenticeship Framework. New apprenticeships concerning digital occupations and competences have been designed. Apprenticeships have been entered in the educational system and they allow particular industrial competences to be achieved. The **design of apprenticeship standards** may be used in the Mazowieckie Voivodeship as the basis for the description of the standard concerning digital competences necessary for the industrial transformation of MSMEs in the region. The design of the competence and detailed qualifications' roadmap will help design the curriculum and the portfolio of vocational training courses responding to the market demand, and the offer of digital solutions required for the jobs of the future. British good practice shows that apprenticeships are an interesting solution that could be implemented in the Mazowieckie Voivodeship as part of the Industry 4.0 programme for MSMEs. However, they need to be supported with a suitable vocational education offer correlated with industry development trends. Such programmes (an integral part of which concerns continuation of education through apprenticeships) would better equip candidates to meet industry needs resulting from the digital transformation of the economy. Good practices show that apprenticeships are a solution that helps gain, improve and develop professional competences. Moreover, solutions presented by Project Partners confirm the needs reported by

Polish academic centres to include the representatives of MSMEs in the education system. Polish universities and vocational schools find it difficult to amend their curricula fast enough to respond to market needs. Therefore, graduates are not well prepared to work in dynamic economic conditions. They end their education with certain expertise and qualifications, but the market is much ahead of the education system. Moreover, on the market there are no educational offers that would allow employees to improve their competences effectively and in line with the latest trends and their actual needs. Therefore, the ideal solution to support lifelong learning are apprenticeships in Industry 4.0 areas implemented before or in the course of employment. Best equipped for the digital transformation are enterprises that already have digital technologies and solutions in place and use them to support their production and business processes and to identify gaps in the digital competences and skills of their employees. No Polish school or university has an opportunity to respond to changes so seamlessly. Additionally, the British good practices discussed above stress the importance of intersectoral cooperation (i.e. collaboration between public institutions, education centres, and companies (regardless of their size)).

- **Improving SMEs Competitiveness Policies Skills for Growth**, United Kingdom, Leeds Region (West Yorkshire, UK) (Semester 5) – the project was designed to support businesses in finding their way through the new landscape of skills and workforce development plans that address specific skill gaps. In the 2020–2023 period, as part of the ESF, Leeds Region actively supported local SMEs in improving skill and building awareness of the need for improved employee qualifications. The main objective of the programme was to: respond to companies' needs and cooperate with them on the identification of challenges, competence gaps, future industry needs, and skill gaps; link businesses with various educational institutions to enable better understanding of competence demand on the labour market and cooperation on proper preparation of the workforce; and plan projects linking businesses with educational institutions that would revolve around apprenticeships and internships. With the programme enterprises could raise their awareness of and participate in the design of the educational offer to ensure its adaptation to the changing needs of the labour market.
- **Gate 4.0, Tuscany Region, Italy** – The Italian example of intersectoral cooperation (Semester 5) establishes networks between enterprises, start-ups, research organisations, financial institutions and universities. Cooperation is based on B2B networks that enable the digital transformation and development of innovative technological or organisational solutions, to name a few. Such a network stimulates the technological development and digital transformation of MSMEs. Such cooperation is particularly important for the digital transformation of MSMEs and certain elements of created networks will constitute **guidelines for the digitalisation roadmap for MSMEs in the planned Guidebook for MSMEs in the Mazowieckie Voivodeship concerning digital competences.**

ACTIONS

Given the above-listed good practices identified in the SMARTY project and the experience gained at international meetings, and also taking into consideration the work on the EFM 2021-2027, also as regards the needs of the Polish MSMEs, it was concluded that the **Guidebook for MSMEs in the Mazowieckie Voivodeship concerning digital competences will be a tool supporting companies in the region in facing new challenges in the area of digital competence building, and in applying for EFM 2021-2027 funds.**

As inspired by the international practices identified in the Project, the Guidebook will contain the following elements:

1. Develop a digital competence roadmap for the Mazowieckie Voivodeship;
2. Develop a digitalisation roadmap with related financing instruments;
3. Develop an apprenticeship standard for Industry 4.0 for employees of MSMEs in Mazowieckie Voivodeship; and
4. Develop a technology readiness assessment tool (a self-diagnostics test).

The guidebook will **contribute to the management** of the EFM 2021-2027, as well as RIS Mazovia. Analyses commissioned by the Mazowieckie Voivodeship, i.e. 'Analysis of the potential and prospects for the development of the agri-food sector in Mazovia' and 'Analysis of the potential and development trends of the metal industry in Mazovia' showed that SMEs from the voivodeship rarely reach for technologies at the Industry 4.0 level. Entrepreneurs' thinking about digitization tends to stop at simple automation, Internet marketing or supporting singular business processes. Digitization is rarely, if ever, associated with investments in implementations based on, for example, Big Data, cloud computing, artificial intelligence, 3D printing, IoT or complex social media solutions.

Publishing and promoting the guidebook including the results of the actions planned will help to better communicate the challenges and expectations related to the development of industry 4.0. This will be important in the calls dedicated to changes in business models in EFM 2021-2027, where both investments and providing skills will be necessary. We believe that the guidebook will help to make applicants aware of the features of a good Industry 4.0 project, help them make an initial assessment of the potential and properly adapt the purchased solutions to their enterprises.

Action 1: Develop a digital competence roadmap for the Mazowieckie Voivodeship

Inspiration:

The digital Innovation Hub and Competence Centre in Tuscany – a network deploying innovation 4.0 in the Region

It will be a main tool enabling the identification of the needs of MSMEs concerning the skills and expertise of present and future employees. The roadmap will have the form of a

multidimensional model. Its creation will take into consideration the dominant characteristics and the main areas of activity of MSMEs in particular industries, as well as the region's smart specialisations and location impacting the accumulation of such industries. The map will include competences necessary at different company levels (officers, managers and employees). Firstly, it will serve to identify the demand for the expertise and skills needed for the digital transformation, regardless of the type or the activity of the enterprise. Secondly, it will help identify the jobs of the future characteristic for a particular industry.

The map will also focus on the identification of gaps in expertise and skills needed for the digital transformation.

The correlation between these two elements will produce two results. Result 1: identification of the digital readiness of enterprises and their employees. Result 2: precise identification of competence gaps per employees, industries and geographical location.

This will primarily help to determine the level of employees' awareness and identify strengths and weaknesses as well as short and long-term challenges, and additionally – necessary areas of training, as regards present and future jobs. As a result, the competence roadmap, from the strategic point of view, will serve to identify vocational training needs of different employees.

How to improve the policy:

- Better identification of the needs of MSMEs on the skills and expertise of present and future employees.
- Identification of the demand for the expertise and skills needed for the digital transformation.
- Supporting in the identification of the jobs of the future characteristic for a particular industry.
- Identification of gaps in expertise and skills needed for the digital transformation.
- Identification of vocational training needs of different employees.

All these activities will contribute to the improvement of the innovation development systems and industrial transformation, especially in terms of Industry 4.0 and digitalisation of enterprise (Aim 1, specific goal 1 of the Programme).

This action will improve the management and adoption of RIS Mazovia by contributing to the following goals and actions under the strategy:

- action 1.3: Supporting the implementation of digital solutions and Industry 4.0 technologies in enterprises and research units - as part of strategic objective 1: Increasing innovative activity in Mazovia,
- action 3.1: Creating support tools for enterprises and research units introducing innovations within the smart specialisation of Mazovia, including, inter alia, Industry 4.0, low-carbon economy and circular economy – as part of strategic objective 3: Effective ecosystem of creating and supporting innovation.

The action therefore contributes to the fulfilment of the enabling condition for EFM 2021-2027 by supporting industrial transition.

Action 2: A digitalisation roadmap with related financing instruments

Inspiration:

Gate 4.0, Tuscany Region, Italy

The main challenges as regards digital transformation of MSMEs include in particular fragmented knowledge of good practices and hampered access to practical application examples. Time is of the utmost importance to business owners. In most cases the high level of resource utilisation and the time needed for process implementation decide on its abandonment. The digitalisation roadmap is to help enterprises reduce the waste of resources. It will have the form of an easy-to-follow manual containing a check list of activities supporting the digital transformation necessary to avoid common pitfalls. The roadmap will include a list of tasks and activities to be carried out by an enterprise to ensure the success of its digital transformation. Some of these tasks will be mandatory (universal) and they will be a prerequisite for successful digitalisation, regardless of the size or activity of the enterprise or the industry in which it operates. They will be supplemented with examples of good practices, challenges and solutions. They will also include practical guidelines on digital readiness assessment, identification of particular needs and suggested problem solutions.

Additionally, the roadmap will contain some more advanced steps to be taken to successfully carry out the digital transformation or expand the business activity, and specific challenges relating to the nature of the business activity. These steps will also be supplemented with examples of challenges, solutions and recommendations. Importantly, the roadmap should stress the areas and processes important from the point of view of digitalisation and their impact on and correlation with the green economy. The roadmap should clearly indicate the relation between digital solutions and optimised use of resources for higher energy efficiency. It will also address the need to effectively manage resources at the time of digital transformation to eliminate risks stemming from the inadequacy of solution to the actual needs of the company.

How to improve the policy:

- Verification of the maturity of the enterprise (who submit the project proposals) as for the Industry 4.0.
- Identification of existing digital competences of an enterprise.
- Monitoring the enterprise's development and the effectiveness of the digital processes introduced.
- Management competence building.
- Identification of needs at future levels of development.

All these activities will contribute to the improvement of the innovation development systems and industrial transformation, especially in terms of Industry 4.0 and digitalisation of enterprise (Aim 1, specific goal 1 of the Programme).

This action will improve the management and adoption of RIS Mazovia by contributing to the following goals and actions under the strategy:

- action 1.3: Supporting the implementation of digital solutions and Industry 4.0 technologies in enterprises and research units - as part of strategic objective 1: Increasing innovative activity in Mazovia,
- action 3.1: Creating support tools for enterprises and research units introducing innovations within the smart specialisation of Mazovia, including, inter alia, Industry 4.0, low-carbon economy and circular economy – as part of strategic objective 3: Effective ecosystem of creating and supporting innovation.

The action therefore contributes to the fulfilment of the enabling condition for EFM 2021-2027 by supporting industrial transition.

Action 3: Development of the apprenticeship standard for Industry 4.0 for employees of MSMEs in the Mazowieckie Voivodeship

Inspiration:

Digital Apprenticeships in Yorkshire and Improving SMEs Competitiveness Policies Skills for Growth, Leeds Region (UK).

Research (e.g. the Human Capital Balance) shows that innovation of enterprises is strongly connected with HR potential and possibilities to develop employees' competences in accordance with the latest market trends. Therefore, with respect to the sustainable development assuming the implementation of the Industry 4.0 idea in the Mazowieckie Voivodeship, it is necessary to activate mechanisms that will enable enterprises (particularly MSMEs) to build human capital and awareness of benefits stemming from digital transformation and Industry 4.0, mainly as regards interoperability of stakeholders.

How to improve the policy:

The design of the apprenticeship programme correlated with the educational offer of schools and universities should include the digital competence roadmap and particular requirements concerning business activity in the Industry 4.0 ecosystem – to provide comprehensive tools to improve qualifications.

Apprenticeships should be organised in companies that have already implemented the Industry 4.0 idea or are finalising their transformation towards Industry 4.0 using necessary digital solutions. Apprenticeships should be designed based on regional smart specialisations and they should take into consideration key competence gaps of local MSMEs.

All these activities will contribute to the improvement of the development of skills in smart specialisation and entrepreneurship (Aim 1, specific goal 2).

This action will improve the management and adoption of RIS Mazovia by contributing to the following goals and actions under the strategy:

- action 1.3: Supporting the implementation of digital solutions and Industry 4.0 technologies in enterprises and research units - as part of strategic objective 1: Increasing innovative activity in Mazovia,
- action 3.3: Developing directions of staff training for the modern economy at various levels of education, based on regional smart specialisation and increasing the involvement of enterprises in the development of vocational education in Mazovia – as part of strategic objective 3: Effective ecosystem of creating and supporting innovation.

The action therefore contributes to the fulfilment of the enabling condition for EFM 2021-2027 by supporting industrial transition.

Action 4: Develop a technology readiness assessment tool (a self-diagnostics test).

Inspiration:

Industry 4.0: Support to acquire I4.0 Audit services, Tuscany Region, Italy, Prato Municipality

The self-diagnostics tool will be directly related to the verification of the competences of MSME staff in the area of Industry 4.0 (competences of the future). A tool will enable the companies to identify the competency needs of the MSME staff in terms of the knowledge and skills of current employees. Through the self-assessment tool, MSME will determine their employee competency status and their competency gaps, which will allow them to define themselves on the roadmap and to indicate possible actions, and indicate which competencies should be sought among future employees in order to effectively supplement the team's competences.

The self-diagnostics test can also support entrepreneurs in the process of recruiting employees, as well as building professional development paths for new employees. It will strengthen the area of management of MSME human resources in the area of Industry 4.0.

How to improve the policy:

The activity will contribute to the improvement of the innovation development systems and industrial transformation, especially in terms of Industry 4.0 and digitalisation of enterprise (Aim 1, specific goal 1 of the Programme).

This action will improve the management and adoption of RIS Mazovia by contributing to the following goals and actions under the strategy:

- action 3.1: Creating support tools for enterprises and research units introducing innovations within the smart specialisation of Mazovia, including, inter alia, Industry 4.0,

low-carbon economy and circular economy – as part of strategic objective 3: Effective ecosystem of creating and supporting innovation.

The action therefore contributes to the fulfilment of the enabling condition for EFM 2021-2027 by supporting industrial transition.

Action 5: Publishing a Guidebook for MSMEs in the Mazowieckie Voivodeship concerning digital competences

This action will be a result of the previous actions 1-4.

The Guidebook for MSMEs in the Mazowieckie Voivodeship concerning digital competences will be published by the Lukaszewicz Research Network – Institute for Sustainable Technologies in Radom, Poland on its website; it will also be emailed to all partners of the Institute and presented at various webinars, seminars, workshops or conferences organised by the Institute.

Additionally, the Office of the Marshal of the Mazowieckie Voivodeship in Warsaw and other public and private institutions engaged in the process of digital transformation in the region or offering educational services, particularly as regards gaps in competences considered to be 'competences of the future', will actively promote the Guidebook.

How to improve the policy:

- The Guidebook for MSMEs in the Mazowieckie Voivodeship concerning digital competences, which will also include the digitalisation map, will support digital transformation and corresponding opportunities and financing options for the enterprises.
- Enabling proper selection of solutions supporting companies at the beginning of their digital transformation journey.
- Searching for the necessary information about the value, implementation and financing of the digital transformation in one place.

This action will improve the management and adoption of RIS Mazovia by contributing to the following goals and actions under the strategy:

- action 1.3: Supporting the implementation of digital solutions and Industry 4.0 technologies in enterprises and research units - as part of strategic objective 1: Increasing innovative activity in Mazovia,
- action 3.1: Creating support tools for enterprises and research units introducing innovations within the smart specialisation of Mazovia, including, inter alia, Industry 4.0, low-carbon economy and circular economy – as part of strategic objective 3: Effective ecosystem of creating and supporting innovation,
- action 3.3: Developing directions of staff training for the modern economy at various levels of education, based on regional smart specialisation and increasing the involvement of enterprises in the development of vocational education in Mazovia – as part of strategic objective 3: Effective ecosystem of creating and supporting innovation.

The action therefore contributes to the fulfilment of the enabling condition for EFM 2021-2027 by supporting industrial transition.

Players involved

The following organisations and/or groups are involved in the delivery of this action:

- Lukaszewicz Research Network – Institute for Sustainable Technologies in Radom – responsible for the promotion of the Guidebook among stakeholders.
- The Office of the Marshal of the Mazowieckie Voivodeship in Warsaw – responsible for the publication of the Guidebook on innowacyjni.mazovia.pl and on the EFM 2021-2027-related website, as well as for its promotion at meetings concerning calls for proposals in the areas of digital competences.
- Fundacja Platforma Przemysłu Przyszłości (Industry of the Future Platform Foundation) will be responsible for the publication of the Guidebook on przemyslprzyszlosci.gov.pl and its digital platform containing the information about the Industry 4.0 ecosystem in Poland.

Timeframe

- Promotion of the Guidebook for MSMEs in the Mazowieckie Voivodeship concerning digital competences – from the date of its completion until at least the end of Phase II of the SMARTY project.

Costs (if relevant)

- The dissemination activities on the part of the Office of the Marshal of the Mazowieckie Voivodeship in Warsaw will be performed at no additional cost.
- The dissemination activities on the part of Lukaszewicz Research Network – Institute for Sustainable Technologies in Radom will be performed at no additional cost.

Lukaszewicz Research Network – Institute for Sustainable Technologies in Radom

Date: 30.05.2022

Signature:

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dr inż. Jakub Gadek

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Date:

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