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**Report no. 2**  
**Report on recommendations for the Involvement  
of Stakeholders and Governance of Regional  
Innovation Strategies in Mazovia Region.**



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## List of abbreviations

MDA	Mazovia Development Agency Plc ( <i>Agencja Rozwoju Mazowsza S. A.</i> )
R+D/ R+D+I	Research and development works/research and development and implementation works
COIE	Investor and Exporter Service Centre ( <i>Centrum Obsługi Inwestora i Eksportera</i> )
ECRN	European Chemical Regions Network
EE	Energetic efficiency
ERDF	European Regional Development Fund
IEE	Intelligent Energy – Europe
IoT	Internet of Things
MA RIS	Managing Authority for Regional Innovation Strategy for Mazovia 2020
LGU	Local government unit
MEA	Mazovia Energy Agency
MPNT	Mazovia Science and Technology Park in Płońsk ( <i>Mazowiecki Park Naukowo-Technologiczny - Park Spółdzielczy w Płońsku</i> )
MRI	Mazovian Innovation Council ( <i>Mazowiecka Rada Innowacyjności</i> )
MSODI	Mazovian Network of Information-Advisory Centres for Innovation ( <i>Mazowiecka Sieć Ośrodków Doradczo-Informacyjnych w zakresie Innowacji</i> )
SME	Small and medium enterprises
WMA	Warsaw Metropolitan Area
RES	Renewable energy source
PAN	Polish Academy of Sciences ( <i>Polska Akademia Nauk</i> )
PKN	Polish Oil Concern ( <i>Polski Koncern Naftowy</i> )
PPPT	The Płock Industrial and Technological Park ( <i>Płocki Park Przemysłowo-Technologiczny</i> )
RIS	<i>Regional Innovation Strategy for Mazovia 2020. Innovation support system and smart specialization of the region</i> , constituting an annex to Resolution No. 23/15 of the Mazowieckie Voivodship Assembly of 16 March 2015 with the amendment
ROP MV	Regional Operational Programme of Mazowieckie Voivodeship (concerning the timeframe 2014-2020, unless stated otherwise)
S3Chem	Project <i>Smart Chemistry Specialisation Strategy</i> , financed from the Interreg Europe Programme
MES RIS	Monitoring and Evaluation System for Regional Innovation Strategy for Mazovia
SRWM	<i>The Development Strategy of the Mazowieckie Voivodship 2030. Mazovia as an Innovative Region</i> , Annex to Resolution No. 158/13 of the Mazowieckie Voivodeship Assembly of 28 October 2013
RCMV	Regional Council of Mazowieckie Voivodeship
ICT	Information and communication technologies
UMWM	The Office of the Marshal of the Mazowieckie Voivodeship in Warsaw
MBMV	Management Board of the Mazowieckie Voivodship

## 1. Introduction

Present report is prepared as part of the implementation of the "Smart Chemistry Specialisation Strategy" (S3Chem), a project funded by the Interreg Europe Programme. It concerns the involvement of stakeholders in the development, implementation, monitoring and updating in the scope of the *Regional Innovation Strategy for Mazovia 2020*<sup>1</sup>. The adopted division of content reflects the most important issues concerning the document, including a description of the involvement of stakeholders in processes related to individual stages of document management and the resulting challenges. A comprehensive approach to the subject is the reflection of the necessity to take into consideration the *Development Strategy of the Mazowieckie Voivodship 2030. Mazovia as an Innovative Region*, constituting an Annex to Resolution No. 158/13 of the Mazowieckie Voivodship Assembly of 28 October 2013, and measures, as well as priority directions of activities developed by working groups on smart specializations in the chemical and related sectors. Given this, the most significant Mazovian cooperation networks and clusters operating in the chemical sector have been described. This description includes the structure of these entities, their composition and the subject of cooperation. In order to synthetically present the characteristics of the stakeholders, a summary has been attached to the study, being at the same time a result of the conducted research with the participation of stakeholders.

By describing all abovementioned aspects, it was possible to identify the strengths and weaknesses of the management of the *Regional Innovation Strategy for Mazovia*, expectations of stakeholders concerning the interregional cooperation, and proposals for recommendations for measures aimed at improving the document management, therefore interviews conducted with the entities implementing the Strategy are of a considerable significance. They provide the research knowledge relating to the expectations of stakeholders towards interregional cooperation and necessary measures for the improvement of the management of the Strategy.

Both the *Regional Innovation Strategy for Mazovia* and the *Development Strategy for Mazowieckie Voivodship 2030* are horizontal documents, reflecting the strategic approach of the Mazovian authorities to disseminating innovation processes in the region. A considerable scope of uncertainty and risks associated with innovative endeavours result in the necessity of the strategic approach to the support and the development of this type of activities. Indicated documents include niches in which innovative activity may develop, and the specificity of the region, taking into account, among others, the availability and quality of social capital. The Regional Innovation Strategy for Mazovia is also consistent with national and EU documents, including the Europe 2030 Strategy, and developed regarding to aspects such as resource and energy efficiency, waste management and promotion of technologies and substances neutral to the environment or minimizing the negative impact on it. The documents present a significant degree of diversification of the Mazovian economy, and the long-term objectives aim at shaping the pro-innovation environment of the region, including in the chemical industry. They constitute therefore a comprehensive response to the emerging challenges, which may result in the use of the opportunities and potentials of Mazovian enterprises.

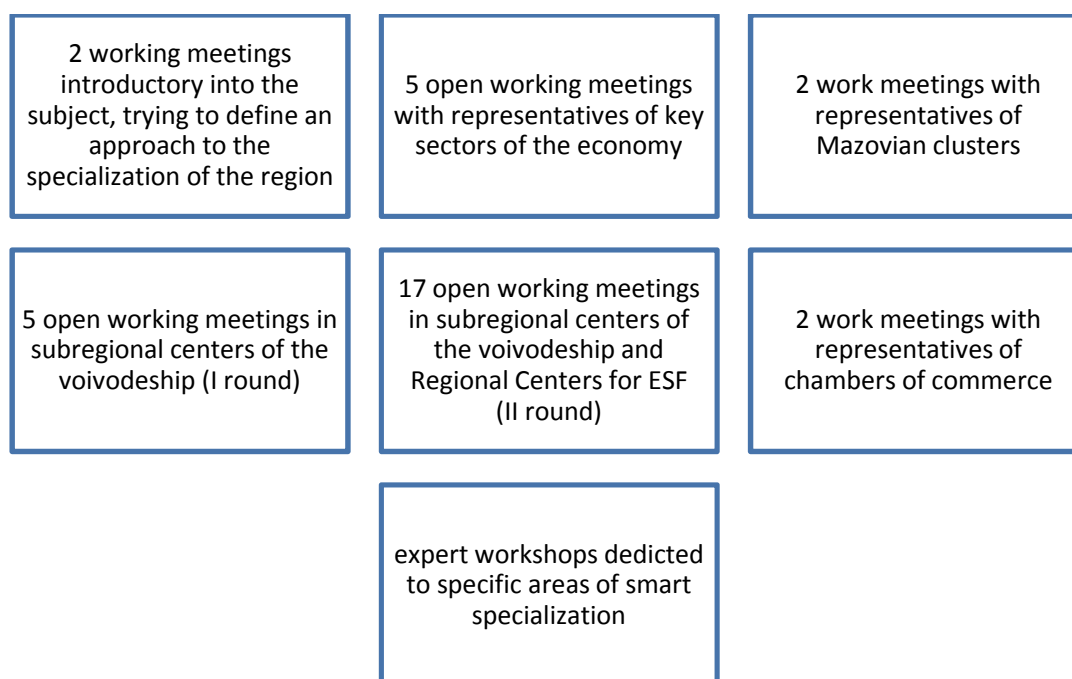
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<sup>1</sup> *Regional Innovation Strategy for Mazovia 2020. Innovation support system and smart specialization of the region*, constituting an annex to Resolution No. 23/15 of the Mazowieckie Voivodship Assembly of 16 March 2015 with the amendment (hereinafter referred to as: *Strategy or Regional Innovation Strategy*).

## 2. Involvement of private and public entities from the chemical and bio-economic sectors

### 2.1. Participation of stakeholders at the stage of developing the Regional Innovation Strategy for Mazovia

The involvement of stakeholders may be observed at every stage of work on the Regional Innovation Strategy for Mazovia, starting from the initial developing of the document. Updating the Strategy in 2015 was subject to the process of social consultations, assuming the involvement of the widest possible group of stakeholders in this process. For this purpose, in 2014 34 meetings were organized, including:



*Source: Report on public consultations of the project of Regional Innovation Strategy for Mazovia 2014-2020 with smart specialization of the region, 27 February-3 April 2014, Warsaw 2014, p. 12.*

During the meetings, the participants were presented with the scope of planned changes to be included in the update process for the Strategy; meetings provided participants with the possibility to discuss the document, resulting in the development of detailed solutions to the disputable issues. During the consultation process, 203 comments were submitted by 17 entities. In the total number of 203 submitted comments, 81 were accepted, 55 were partially accepted and 65 were rejected. 2/3 of the remarks concerned substantive changes in the content of the document, while the remaining part - technical changes and opinions<sup>2</sup>.

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<sup>2</sup> Report on public consultations of the project of Regional Innovation Strategy for Mazovia 2014-2020 with smart specialization of the region, 27 February-3 April 2014, Warsaw 2014, p. 15.

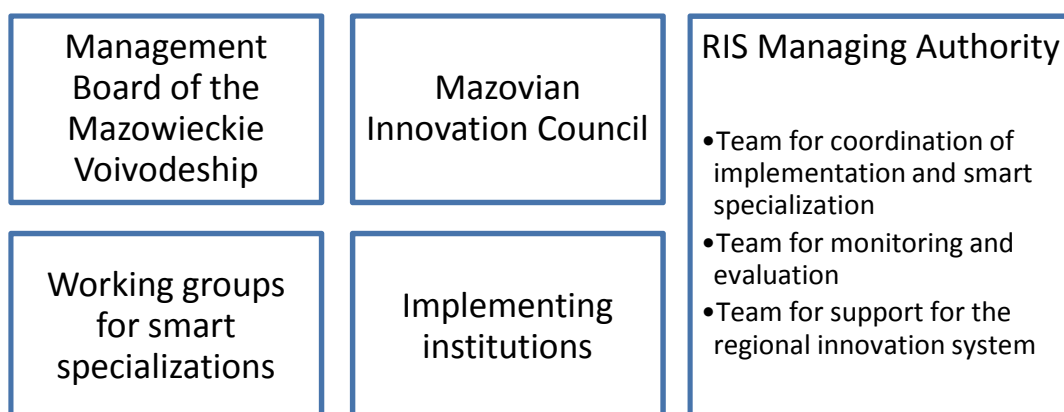
## 2.2. Participation of stakeholders in the implementation of the Regional Innovation Strategy for Mazovia

The Board of the Mazowieckie Voivodeship is responsible for coordinating the implementation of the Regional Smart Specialization, performing the role of the RIS Managing Authority and fulfilling these tasks with the support of the implementing institutions located within the structures of the Marshal's Office of the Mazowieckie Voivodeship in Warsaw<sup>3</sup>.

The implementation of the document and the process of smart specialization is supported by working groups divided into individual smart specializations of the region. The establishment of working groups aims at enabling stakeholders to participate in the management and monitoring of RIS. Moreover, this activity makes it possible to direct the support within each of regional smart specializations to meet current needs in a manner that assumes the highest degree of effectiveness of said support.

The representatives of enterprises have a key role in working groups, with the selection of a representative of stakeholders (e.g. a cluster) as the leader coordinating the work of the working group. In addition to working groups, Mazovian Innovation Council operates in the Mazowieckie Voivodeship, serving as a consultative and advisory institution concerning matters related to the implementation of RIS.

Moreover, the catalog of entities which could be involved in the implementation of the document is open; concerning implementing institutions, it is possible to involve, among others, entities that operate within the regional system of innovation and implement activities aimed at achieving RIS objectives<sup>4</sup>.



Source: own research basing on: *Regional Innovation Strategy for Mazovia 2020. Innovation support system and smart specialization of the region, Warsaw 2015, an annex to Resolution No. 23/15 of the Mazowieckie Voivodship Assembly of 16 March 2015, p. 49.*

## 2.3. Participation of stakeholders in the process of monitoring of the Regional Innovation Strategy for Mazovia

The process of monitoring the Strategy's implementation constitutes one of the essential elements of fulfilling document's objectives. Collecting data through the Strategy monitoring system and their analysis, as well as the analysis of the results of evaluation studies, allow for an initial assessment of the effectiveness of undertaken measures. Identifying conclusions on this basis results in the

<sup>3</sup> *Regional Innovation Strategy for Mazovia 2020. ..., p. 48.*

<sup>4</sup> *Ibidem, pp. 48-49.*

possibility to decide on corrective actions, including new objectives under RIS and identifying links within existing smart specializations<sup>5</sup>.

In order to implement the monitoring process, the Monitoring and Evaluation System for Regional Innovation Strategy for Mazovia (MESRIS) was established. The monitoring team within the structure of the RIS Managing Authority is responsible for conducting monitoring of RIS. The team is responsible for obtaining, collecting and analysing data, reviewing the progress of Strategy implementation and formulating proposals for changes in the system of its indicators. As part of the monitoring process, the RIS Managing Authority annually submits the information on the current status of the Strategy implementation to Mazovian Innovation Council.

Evaluation is used for current decisions regarding the implementation of a document. In accordance with the Strategy, a supplementary (annual) assessment, mid-term evaluation and ex-post evaluation of the Strategy are necessary. According to the needs, thematic evaluations are also conducted in the scope of issues relevant to the current implementation of the Strategy. Detailed objectives of the evaluation, scope of the research and its expected results are determined by the monitoring and evaluation team, constituting part of the RIS Managing Authority, in cooperation with the Mazovian Innovation Council and working groups on smart specialization. Recommendations resulting from the conducted evaluation are submitted for acceptance to the Mazovian Innovation Council, which simultaneously monitors the process of implementing the recommended measures<sup>6</sup>.

#### **2.4. Participation of stakeholders in the update of the Regional Innovation Strategy for Mazovia**

To ensure the continuity and flexibility of the implementation of the document, the smart specialization of Mazovia was adopted in the form of an attachment to the Strategy. Given this, the work on smart specialization and its review are independent of possible changes to the objectives of the Strategy. Furthermore, once every three years, the Mazovian Voivodeship Board, as the Managing Authority of RIS, reviews smart specialization. The review includes an analysis of the socio-economic situation of the region regarding the timeliness of smart specializations and the possible identification of new areas, analysis of the progress of RIS implementation and consultations with stakeholders. The review is the basis for a decision on the possible update of the document.

The Regional Innovation Strategy for Mazovia was originally prepared for 2007-2015, and was adopted in 2008. Then, it was updated in 2015, taking into account the continuity of objectives and measures undertaken within its framework. The update extended the substantive scope of the document to issues related to the development of social capital, with support for the development of the information society and for the diagnosis of smart specialization of the region as a tool for targeting measures supporting innovation. Moreover, in 2017, the Priority objectives of the research<sup>7</sup> and the implementation Programme<sup>8</sup> for RIS were reviewed and updated.

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<sup>5</sup> *Ibidem*, pp. 50-51.

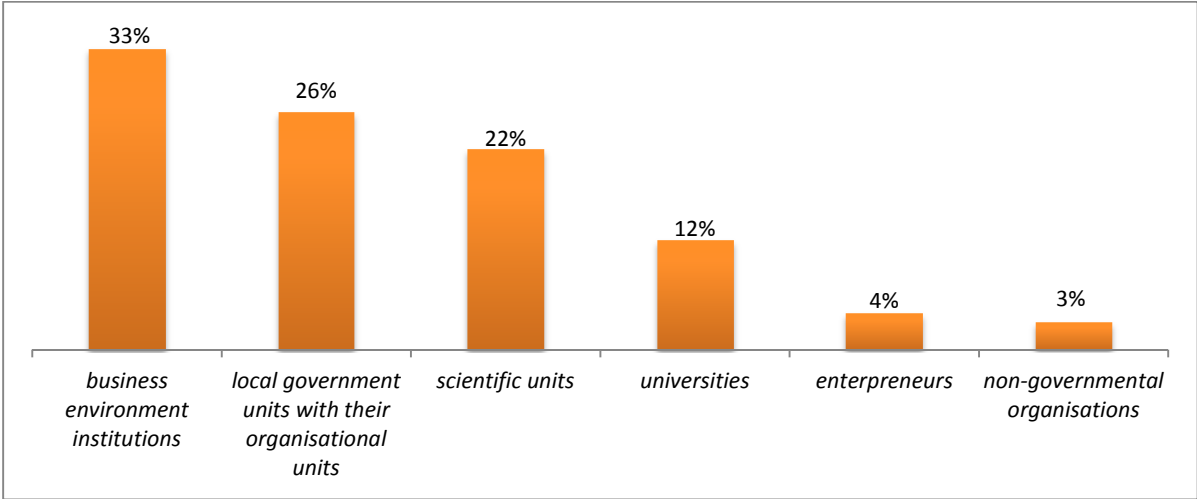
<sup>6</sup> *Ibidem*, pp. 52-53.

<sup>7</sup> *Priority research directions within the smart specialization of the Mazowieckie Voivodeship version 2.0, Warsaw 2017.*

<sup>8</sup> *Implementation Programme for 2016-2017 for the Regional Innovation Strategy for Mazovia 2020, Warsaw 2017, Annex to Resolution No. 693/242/17 of the Board of Mazowieckie Voivodeship of 16 May, 2017.*

Another review and update of the priority research directions was conducted in May 2018<sup>9</sup>; also the adoption of a new Implementation Programme for 2018-2019 is planned in the current year. A wide range of stakeholders participated in the public consultations conducted in connection with the update of the Strategy, among them: business environment institutions, local government units, scientific units, universities, entrepreneurs and non-governmental organizations, therefore the group of stakeholders included both private and public entities.

**Figure 1** Participation of individual stakeholder groups in public consultations concerning the planned update of the Strategy in 2017



Source: Report on public consultations of the project of Regional Innovation Strategy for Mazovia 2014-2020 with smart specialization of the region, 27 February-3 April 2014, Warsaw 2014, p. 13.

**2.5. Challenges resulting from stakeholders' participation**

The main challenge associated with the involvement of stakeholders in management of the document is their correct, comprehensive identification. It is a complicated process that should take into consideration all areas in which entities from the chemical industry are involved, and, therefore, public administration at both national and local levels - that is local government, public enterprises, private enterprises, universities and scientific research units, cooperation networks of entities, e.g. clusters and science and technology parks, or business environment organisations. A wide range of entities that participate in the management of the Strategy in the Mazowieckie Voivodeship results in the possibility to observe the fact that the identification process occurred correctly in the region, including the participation of all interested groups of entities in document management. The involvement of stakeholders requires also identifying their role and planned scope of interference at particular stages of document management in a manner that would ensure the real impact of entities on document management, and ensure the elimination of possible conflicts of interest between stakeholders involved in the document management process. The motivation of potential stakeholders is also crucial. It shall be emphasized that the largest entities acting as market regulators are often not interested in support at the local government level, making it a challenge to

<sup>9</sup> Priority research directions within the smart specialization of the Mazowieckie Voivodeship version 3.0, Warsaw 2018.



motivate them in a manner that would influence them to participate in the management of this document.

**Table 1 Entities involved in document management at individual stages**

Involved entity	The stage of management:			
	Development	Implementation	Monitoring	Update
<i>RIS Managing Authority: Board of Mazowieckie Voivodeship</i>	x	x	x	x
<i>RIS Managing Authority: group for coordination of implementation and smart specialisations</i>		x		
<i>RIS Managing Authority: group for monitoring and evaluation</i>			x	
<i>RIS Managing Authority: group for support for the regional innovation system</i>	x	x	x	
<i>Mazovian Innovation Council</i>	x	x	x	x
<i>Working groups for smart specializations of the region</i>	x	x	x	x
<i>Task teams for smart specializations of the region</i>	x	x	x	x

Source: own research basing on Regional Innovation Strategy for Mazovia 2020. Innovation support system and smart specialization of the region, constituting an annex to Resolution No. 23/15 of the Mazowieckie Voivodship Assembly of 16 March 2015

Involvement of Coordinators of working groups/task teams as an intermediate subject between stakeholders and the Managing Authority ensures the efficient flow of information in both directions and representation of stakeholders towards the Board of the Mazowieckie Voivodeship.

**Table 2 A list of entities involved in the management of the Strategy, with an indication of their role**

Involved entity	Role of the entity
<i>Board of Mazowieckie Voivodeship</i>	<i>RIS Managing Authority, performing tasks through the group for coordination of implementation and smart specializations, the group for monitoring and evaluation, and the group for support for the regional innovation system</i>
<i>Mazovian Innovative Council</i>	<i>Opinion and advisory entity for RIS MA.</i>
<i>Coordinator of working groups/task teams for smart specialization</i>	<i>Person coordinating working groups/task teams, being the representative of RIS MA.</i>
<i>Working groups</i>	<i>Entities implementing the entrepreneurial discovery process. They participate in developing implementation Programmes and principles and conditions for specific support, they are responsible for the continuation of work in the identification of new RIS areas, formulating priority research directions, supporting the RIS Managing Authority in assessing the current implementation of the Strategy, consulting and expressing opinions concerning the scope of the analysis and research, including evaluation.</i>
<i>Task teams</i>	

Source: own research basing on Regional Innovation Strategy for Mazovia 2020. Innovation support system and smart specialization of the region, constituting an annex to Resolution No. 23/15 of the Mazowieckie Voivodship Assembly of 16 March 2015

### 3. Management of the Regional Innovation Strategy for Mazovia

The management of the Regional Innovation Strategy for Mazovia is conducted predominantly by involving a wide range of stakeholders at each stage of the document's development and implementation. The basic form of stakeholder involvement in the process of managing the Strategy are working groups for smart specialization. As part of working groups, task teams may be established if it is necessary. In accordance with the Regulations of work of working groups for smart specialization of the Mazowieckie Voivodeship, the tasks of working groups and task teams include:

- *development of priority research directions (research agendas for areas of smart specialization);*
- *cooperation in creating implementation Programmes for RIS;*
- *participation in the RIS monitoring process;*
- *verification of scopes and participation in the smart specialization update process;*
- *consulting support instruments within the specialization (e.g. objectives of contests, project evaluation criteria (...));*
- *identifying barriers and threats to the region's economic development in connection with areas of smart specialization*<sup>10</sup>.

Attention shall be drawn to the fact that working groups and task teams participate in all processes related to the functioning of the Regional Innovation Strategy for Mazovia. Companies and institutions being stakeholders have the opportunity to participate in the work of groups and teams by delegating their representative. There occurs also the possibility of participating in the work of groups as an observer. It is significant that the working groups are open, which means that the composition of groups, directing measures at identified needs, may be subjected to changes regardless of the stage of works of the working group or task team.

Recommendations developed by the working group during its work, conclusions drawn by it regarding areas of smart specialization and the functioning of the regional innovation system and changes in the field of supporting innovation are submitted to the Coordinator of working groups. This function is performed by an employee of the Department of Development and Management of the Regional Innovation Strategy in Department of Regional Development and European Funds of the Marshal's Office of the Mazowieckie Voivodeship in Warsaw, who is also a representative of the Management Board of Mazowieckie Voivodeship as the Managing Authority of RIS.

Another important element of stakeholder involvement in document-related processes is the activity of the Mazovian Innovation Council mentioned in the previous chapter of this report. The Council was established in 2010. The chairman of the body is the Marshal of the Mazowieckie Voivodeship, and among the members of the Council are representatives of the scientific community, entrepreneurs, business environment institutions, government and local government administration<sup>11</sup>. MIC is a consultative and advisory body for the Managing Board of Mazowieckie Voivodeship as the RIS Managing Authority. Its competences include:

- *determining (annual and long-term) work program,*
- *assessing programming and strategic documents related to the innovative development of Mazovia,*

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<sup>10</sup> § 2. Of the Regulations of work of working groups for smart specialization of the Mazowieckie Voivodeship.

<sup>11</sup> <https://innowacyjni.mazovia.pl/> (access: 15.05.2018).

- assessing the implementation of the Regional Innovation Strategy for Mazovia, the results of monitoring work, and indicating measures for changes (amendments) of the provisions of the Strategy,
- assessing and initiating projects supporting the region's innovative development, implemented by the self-government of the voivodeship,
- assessing projects which support the region's innovative development, financed from EU funds, and the criteria for their selection and financing,
- consulting self-government authorities in the scope of current measures related to the development and implementation of regional innovation policy,
- identifying proposals for in-depth studies and analyses of selected economic areas in the region and sub-regions, aimed at defining strategic economic areas in the future,
- initiating measures aimed at acquiring investment capital supporting the innovative economic development of the region<sup>12</sup>.

## 4. Networks of cooperation between entities and clusters (structure, composition, subject of cooperation)

### 4.1. Mazovian Chemical Cluster

Mazovian Chemical Cluster was established in 2014 as a result of joint efforts of representatives of enterprises, local government administration, business environment institutions, universities and research and development centres. The measures undertaken to establish the cluster were the result of meetings and work of the Chemistry industry group established as part of the system project of the Self-Government of the Mazowieckie Voivodeship, titled *Support for cluster initiatives as part of the Mazovian Network of Information-Advisory Centres for Innovation (MSODI)*. The aim of the project was to promote the idea of clustering by supporting institutions involved in this process in relation to the leading areas in the voivodeship.

The founding members of the Mazovian Chemical Cluster include the Płock Industrial and Technological Park S.A., Mazovia Development Agency Plc., Fabryka Substancji Zapachowych "Pollena-Aroma" Sp. z o.o., CHEMTECH enterprise, COBRO – Packaging Research Institute, Institute of Industrial Chemistry, Institute of Organic Industry, Institute of Nuclear Chemistry and Technology, Warsaw University of Technology, University of Warsaw and Warsaw University of Life Sciences. Currently, the Cluster consists of 114 entities, including 86 enterprises, 10 scientific units, 9 research units and 9 business environment institutions.

Members of the Cluster are aiming at increasing the level of their competitiveness by developing innovative technology and environmentally friendly products together with the science sector<sup>13</sup>. The cooperation was established in following areas:

- Development of cooperation between science and business;
- Development of B2B cooperation;
- Science, research and development activities;
- Activities aimed at internalization and promotion of the cluster's activities;
- Acquiring external funds for research and development;

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<sup>12</sup> § 2. Regulations of Mazovian Innovation Council.

<sup>13</sup> <http://www.klasterchemiczny.com> (access: 15.05.2018).

- Educational activities and strategic planning.

The coordinator of the cluster is the Płock Industrial and Technological Park S.A. Moreover, there are organs composed of representatives of the cluster members, with the key one being the Cluster Members' Council. It is a controlling and assessing entity<sup>14</sup>. The second organ is the Steering Committee, composed of the Chairman, the Secretary and other members of the Cluster (maximum 5). The Chairman is a representative of the Cluster Coordinator, having the right to appoint and dismiss the Secretary and, in situations of the equal number of votes, having a casting vote. The other members are appointed by representatives of the Cluster Council. The main tasks of the Steering Committee include:

- expressing opinions on the admission of a new member of the Cluster and informing the Chairman of the Council about the need for the Council to adopt a resolution regarding the admission of a new member of the Cluster,
- determining detailed Regulations and their changes/revisions, and submitting them to the Board of the Cluster for the approval,
- analyzing offers and supporting the negotiations in the terms of contracts with external partners,
- selecting experts and leaders of Working Groups,
- giving consent to the participation of individual members of the Cluster in the project,
- appointing Project Leaders,
- keeping the Cluster members' book<sup>15</sup>.

#### 4.2. AgroBioCluster

Agricultural and Food Cluster AgroBioCluster was established in 2014 as the result of the *Orchestra* project implemented in cooperation with Spain. This project aimed at the development of international cooperation, clusters and partnership. The cluster consists of 27 entities: public administration (3 entities), enterprises (18 entities), business environment institutions (3 entities), educational centres as well as research and development centres (3 entities). The cluster's objective is to *interdisciplinary strengthen the potential*<sup>16</sup> and accelerate the development of the agro-food industry with the use of:

- identifying common competences of cluster members and possible areas of cooperation;
- initiating the development of products with added value resulting from joint production capacities and their commercialization on domestic and foreign markets;
- knowledge and technology transfer and international exchange of experience;
- building sectoral and intersectoral links between the cluster and its members, establishing synergies with clusters and cooperation networks of related industries,
- initiating joint ventures and projects co-financed from EU funds;
- organizing promotional, educational, information activities and trainings
- internationalization of the cluster's activity and its members<sup>17</sup>.

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<sup>14</sup> *Ibidem*.

<sup>15</sup> *Ibidem*.

<sup>16</sup> <http://agrobiocluster.pl/> (access: 15.05.2018).

<sup>17</sup> *Ibidem*.

The cluster intends to achieve objectives through measures aimed at: integration of the sphere of science, business and administration; developing and dissemination of product, marketing and process innovations; implementation of EU projects for individual and group development, internationalization and promotion of international cooperation; searching for new areas of cooperation for joint action or common problem solving<sup>18</sup>.

#### 4.3. Waste Management and Recycling Cluster

Waste Management and Recycling Cluster is one of the sixteen national key clusters. The cluster was established in 2011, when representatives of waste companies operating in Skierniewice decided to tighten cooperation within the cluster and to operate in the Mazowieckie and Łódzkie voivodeships. As a result of the establishment of the cluster, strengthened the cooperation of enterprises from the waste management industry, companies providing consulting services, research and development units and business environment institutions. The cluster includes 58 entities: 25 companies, 11 scientific and research units, 14 consulting companies, 6 chambers and foundations, an inter-municipal association and a commune.

The role of the cluster coordinator since 2013 has been performed by the *Recycling Co-operation Centre - not for profit system sp. z o.o.*, being an executive body of the Cluster Council. Tasks are entrusted to the coordinator by the Cluster Board. Coordinator with the management are responsible for representing the Cluster. The coordinator's tasks include, among others, *initiating, organizing and supporting the cooperation process within the framework of a cooperative link - the Waste Management and Recycling Cluster, between enterprises, business environment institutions, scientific and research units and local self-government units*<sup>19</sup>.

The cooperation within the cluster includes:

- creating a cooperation network in the area of industrial waste management and its processing,
- supporting entrepreneurship and innovation in the field of waste management and ensuring conditions for effective commercialization of research results of universities and research and development units,
- support in increasing the competitiveness of entities belonging to the support network, implementing product, organizational or process innovations, development of sustainable technologies, human capital and exports,
- combining and developing resources and competences in order to effectively use existing opportunities and chances related to the development of innovative knowledge-based economy,
- representing cluster entities, including participation in fairs, missions and national and international meetings and forums,
- promoting the activities of the cluster and its members, as well as promoting the use of all types of waste for the production,
- conducting lobbying activities,
- technical, legal and marketing consulting, aimed at introducing new product and technological solutions to the market,

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<sup>18</sup> *Ibidem.*

<sup>19</sup> <http://www.klasterodpadowy.com/> (access: 15.05.2018).

- consulting in the scope of obtaining funds for the promotion of activities, development and implementation of innovations for entities associated in the cluster, including funds for the implementation of joint projects,
- organizing trainings, seminars and industry conferences<sup>20</sup>.

#### 4.4. The Płock Industrial and Technological Park S.A.

The PPPT is an initiative of representatives of the city of Płock and PKN ORLEN (Polish oil concern). In 2003, abovementioned entities signed an agreement regarding the preparation and implementation of the project. The development of technical and material infrastructure of PPPT was financed from the ERDF funds under the Sectoral Operational Programme *Improvement of the Competitiveness of Enterprises*. Płock Industrial and Technological Park initiated its activities at the beginning of 2005. It offers about 200 hectares of investment areas, including about 130 hectares of land with technical and material infrastructure. Investors include: Elektrobudowa S.A., Flexpol Sp. z o.o., Grupa OPEUS Sp. z o.o., IZO-BET, Masterflex Polska, NEO-TEC Sp. z o.o., NOVA-GIPS S.A., PaChemTech Sp. z o.o., PCC Exol S.A. and PUPH Politechnik. The companies located in the Park have their headquarters in the Administrative Center of PPPT S.A. and in the Corporate Services Center. Moreover, to a large extent PPPT's activity is focused on the chemical industry, and offers a variety of services: business-related, trainings, information, consulting, pro-innovative and financial services.

#### 4.5. Mazovia Energy Agency

The establishment of the Mazovia Energy Agency (MEA) occurred in 2007 at the initiative of the Entrepreneurship Council operating by the Marshal of the Mazowieckie Voivodeship. The Agency is financed from the European Union Programme *Intelligent Energy-Europe (IEE)*. In 2008, the European Commission agreed to finance the project, providing EUR 250 000 for this purpose. The company was established on 26 March 2009 by the Founding Meeting of the Marshal's Office of the Mazowieckie Voivodeship in Warsaw, and the inauguration of the activity was on 18 June 2009<sup>21</sup>.

In accordance with the Strategy of the Mazovia Energy Agency, the predominant objective of the organization's activity is to promote the use of renewable energy sources and implementation of solutions that rationalize the use of energy in Mazovia. Furthermore, the MEA is promoting the regional approach to energy<sup>22</sup>. The Agency's activity is focused on 7 priority needs in the scope of sustainable energy identified in Mazovia:

- Contribution to the implementation of national and regional objectives in the field of RES and EE,
- planning and programming local development, considering the sustainable use of regional energy resources,
- energy issues in rural areas - agriculture as a supplier and an end user of energy,
- difficult energy tasks in the evolving WMA,
- specific energy problems in the county cities of Mazovia,
- promoting the region among entities investing in EE,

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<sup>20</sup> *Ibidem*.

<sup>21</sup> <http://www.mae.com.pl/> (access: 15.05.2018).

<sup>22</sup> *Ibidem*.

- monitoring of activities related to sustainable energy in the region<sup>23</sup>.

The Agency implements its objectives through, among others, the establishment of the **Mazovia Center for Energy Management** which is a team of experts performing the part of the duties of local government units, related to the management of urban lighting. Furthermore, the Agency provides consulting services, e.g. in the scope of energy audits, profitability analysis of RES investments and assistance in the development of project guidelines. As part of its operations, it also announces recruitment to purchasing groups, resulting in an advantage by strengthening their bargaining position.

Attention shall be also drawn to the **Mazovia Cluster for Energy Efficiency and Renewable Energy Sources**, established in 2011. The organizational form of the cluster is a consortium of entities (including cluster members and a coordinator). The coordinator is Mazovia Energy Agency p. z o.o., associating 40 entities - members of the cluster. In addition to the coordinator, the cluster's organs consists of the Organisational Council and the General Assembly. The General Assembly consists of representatives of the cluster members; each member may delegate one representative to the Assembly. The predominant tasks of the Assembly include updating Cluster's Statute, accepting from the Organizing Board an annual report on the Cluster's activities, developing a cluster action plan for the following year and deciding whether to terminate the Cluster<sup>24</sup>.

The Cluster Organisational Council consists of a representative of the Cluster's coordinator and four representatives of the Cluster members appointed by the General Assembly. It serves a consultative and advisory role for the needs of the cluster coordinator, primarily in the area of the annual cluster's program of activities. The work of the Organisational Council is directed by the chairman of the Council, elected by all members at the first meeting of the Council<sup>25</sup>.

Cluster fulfils their objective through:

- promotional activities in the field of energy conservation and environmental protection,
- educational activities - popularizing knowledge about methods that increase energy efficiency, among others through trainings, conferences, workshops,
- developing and implementing effective financial support mechanisms for RES and EE projects,
- assessing and developing standards for systems monitoring energy consumption,
- joint implementation of projects, including the development and implementation of a system for monitoring energy consumption<sup>26</sup>.

#### 4.6. Mazovia Science and Technology Park in Płońsk

MPNT was established to support the agro-food sector using the competitive advantage of Mazovia. Considering the purpose of the MPNT's activities, it undertakes cooperation between entrepreneurs, scientists and regional public institutions. Moreover, the focus of the Park is the development of biotechnology, renewable energy, innovations in agriculture and promoting cooperation between clusters.

MPNT associates 14 entities: Mazovia Development Agency, Mazovia Energy Agency, Polish Biomass Association POLBIOM, Local Action Group „Partnership for Development”, Mazovian Regional Loan

<sup>23</sup> *Ibidem*.

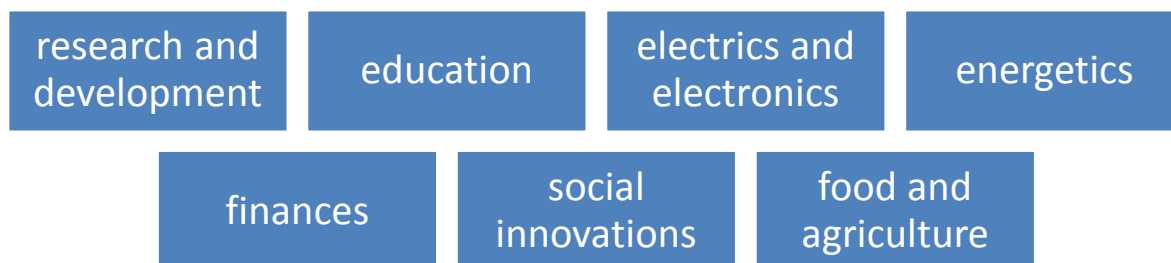
<sup>24</sup> *Statute of the Mazovia Cluster for Energy Efficiency and Renewable Energy Sources, § 9, p. 6.*

<sup>25</sup> *Ibidem, § 11.*

<sup>26</sup> <http://www.mae.com.pl/> (access: 15.05.2018).



Fund Ltd. (Mazowiecki Regionalny Fundusz Pożyczkowy Sp. z o.o.), National Research Institute of Animal Production, DS AUDYT, Foundation for the Development of Polish Agriculture, Mazovian Union of Cattle Breeders and Milk Producers, Foundation for the Work of Nations, Polish Chamber of Regional and Local Product, University of Life Sciences, Institute of Genetics and Animal Breeding PAS , MICROLABS Sp. z o.o. The first four entities are founding members.<sup>27</sup> Entities affiliated with MPNT operate in the following areas:



Source: own research basing on web portal: <http://www.mpnt.pl/> (access: 15.05.2018).

The authorities of the Park constitute of the Management Board and the Program Board. Individual Park members operate on a cooperative basis, however there is no limit to the maximum number of shares to be acquired.

The Park's activities aim at:

- linking science with practice by supporting knowledge transfer between these areas;
- promoting the creation and development of enterprises (primarily in rural areas) focused at promulgating innovative ideas and solutions;
- promoting interregional cooperation between entities in the country and abroad;
- activation of enterprises, creation of cluster initiatives and operational groups;
- promoting and popularizing innovations.

Measures to achieve abovementioned vision include, inter alia:

- organizing wholesale selling of Mazovia agro-food products in order to gain a competitive advantage for the region's enterprises,
- managing an online auction portal as an innovative place for wholesale of agri-food products,
- providing entities with assistance in entering their products into foreign sales markets,
- logistic support for enterprises which products will find a buyer<sup>28</sup>.

Activities are conducted in the form of organizing trainings, providing the stakeholders with an opportunity to consult an expert, and linking originators and universities with potential investors.

#### 4.7. MDA S.A.

Mazovia Development Agency Plc. was established in 2005 by the decision of the Board of Mazowieckie Voivodeship. The purpose and scope of activity are described in detail in the statute of Mazovia Development Agency Plc. According to it, the predominant objective of MDA is to *create and support the regional development of the Mazovia Province, mainly through direct and indirect*

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<sup>27</sup> <http://www.mpnt.pl/> (access: 15.05.2018).

<sup>28</sup> *Ibidem*.



*support of local development and entrepreneurship*<sup>29</sup>. It is being achieved through a broad spectrum of activities including, among others, publishing, educational and financial endeavours, hazardous waste disposal, scientific research and development works, and broadly understood professional science and technology activities<sup>30</sup>. The company's organs constitute of the General Assembly, the Management Board and the Supervisory Board<sup>31</sup>.

In order to improve and professionalise the measures, the internal structure of the Agency is divided into the following sections:

– ***Investor and Exporter Service Centre***

The Centre cooperates with the Ministry of Development; Trade and Investment Promotion departments of Polish Embassies and Consulates around the world; and the Polish Information and Foreign Investment Agency<sup>32</sup>. The Centre provides foreign investors interested in investing in Mazovia with information on Polish legal conditions related to starting a business and practical information on, inter alia, the choice of investment area. It also provides Polish entrepreneurs with an information in the scope of export activities and assistance in establishing contact with a foreign partner. Furthermore, COIE operates in the field of promotion of Mazovia as a place to invest.

– ***Department of Training and Territorial Promotion***

The task of the department include monitoring European funds, verification of sources of financing from European funds for MDA SA projects, preparation of applications for co-financing, supervision over external projects, and consulting and training activities for local government units concerning obtaining European funds.

– ***Department of Urban Policy and Innovation***

Its objective is to *support the implementation and promotion of urban projects in the scope of innovation, revitalization and smart specializations implemented in Mazovia*<sup>33</sup>. This department combines companies, universities and local government authorities in order to cooperate and jointly identify solutions for issues. This cooperation may occur at both national and international levels. The department also undertakes activities supporting the development of cooperative relations between enterprises and the Mazovian clusters in accordance with the RIS objectives.

– ***Department of Infrastructure Investment***

The main task of the Department is the implementation of projects commissioned by RCMV, as well as conducting and supervising construction, industrial and pro-ecological investments, popularizing the idea of the information society and related activities. Moreover, the department runs and supervises investments in the fields of transport and communication, energy and environmental protection.

– ***Department of Capital Investment***

Department's tasks are implemented by *increasing the availability of micro, small and medium enterprises regarding external financing, through the provision of preferential debt, equity and guarantee financing, and supports public and private investments of particular importance for the voivodeship*<sup>34</sup>. This department performs functions resulting from the functioning of the Trust Fund of Mazowieckie Voivodeship, which aim is to increase the competitiveness of the Mazowieckie

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<sup>29</sup> Statute of the Mazovia Development Agency (unified text as for 16 April 2013), Resolution No. 1/2013 of the Management Board, § 4.

<sup>30</sup> *Ibidem*.

<sup>31</sup> *Ibidem*, § 19.

<sup>32</sup> <http://www.armsa.pl/> (access: 15.05.2018).

<sup>33</sup> *Ibidem*.

<sup>34</sup> *Ibidem*.

Voivodeship through the optimal use of resources from the JESSICA and JEREMIE initiatives co-financed from the ROP MV 2007-2013.

## 5. Priorities in the area of the chemical sector and related sectors

The main objective for Mazowieckie Voivodeship in *The Development Strategy of the Mazowieckie Voivodship 2030. Mazovia as an Innovative Region*, is to reduce the development disparity in the Mazowieckie Voivodeship, and an increase in the importance of the metropolitan area of Warsaw in Europe<sup>35</sup>. Abovementioned objective may be achieved through the implementation of measures subordinated to it and the strategic objectives<sup>36</sup>. The objectives of the SRWM were identified within six thematic areas:



Source: own research basing on *The Development Strategy of the Mazowieckie Voivodship 2030. Mazovia as an Innovative Region*, Annex to Resolution No. 158/13 of the Mazowieckie Voivodeship Assembly of 28 October 2013

Each of the objectives of the Strategy has assigned directions of activities, within which priority measures were identified.

Industry and production	<ul style="list-style-type: none"> <li>• Number of directions: 5</li> <li>• Number of priority measures: 10</li> </ul>
The economy	<ul style="list-style-type: none"> <li>• Number of directions: 7</li> <li>• Number of priority measures: 21</li> </ul>
Space and transportation	<ul style="list-style-type: none"> <li>• Number of directions: 5</li> <li>• Number of priority measures: 15</li> </ul>
Society	<ul style="list-style-type: none"> <li>• Number of directions: 7</li> <li>• Number of priority measures: 21</li> </ul>
Environment and energy	<ul style="list-style-type: none"> <li>• Number of directions: 7</li> <li>• Number of priority measures: 22</li> </ul>
Culture and heritage	<ul style="list-style-type: none"> <li>• Number of directions: 5</li> <li>• Number of priority measures: 11</li> </ul>

Source: own research basing on *The Development Strategy of the Mazowieckie Voivodship 2030. Mazovia as an Innovative Region*, Annex to Resolution No. 158/13 of the Mazowieckie Voivodeship Assembly of 28 October 2013

In the area of *Industry and production*, the strategic objective is *Development of export-oriented production in the fields of medium and high-tech technology and the agri-food sector*. Given above, it is necessary to list measures in which the chemical industry and the bioeconomy have a chance to play a leading role:

- Action 1.1. *Promoting research and development activity and implementing its results in industry, in particular in the fields of biotechnology, biomedicine, nanotechnology, photonics,*

<sup>35</sup> *Strategia rozwoju województwa mazowieckiego do 2030 roku. Innowacyjne Mazowsze, Załącznik do uchwały nr 158/13 Sejmiku Województwa Mazowieckiego z dnia 28 października 2013 r., s. 2.*

<sup>36</sup> *Ibidem, s. 3.*

*optoelectronics, information (ICT) and cosmic technologies, as well as in branches of regional specializations.*

- Action 1.2. *Increasing companies' innovativeness, especially in the case of SMEs.*
- Action 1.3. *Improving cooperation between science, business and local/regional administration in the field of innovative activity.*
- Action 3.2. *Support for R&D&I institutions and companies of key importance to the development of industry.*
- Action 5.1. *Development of regional specializations in the agro-food industry.*

As part of the *Economy* area, a strategic objective is *Increasing the region's competitiveness via development of economic activity and transfer and implementation of new technologies.* In this area, the chemical sector and the bioeconomy have a chance to have a key role in the following measures:

- Action 6.2. *Supporting the development of economic clusters and enterprise cooperation networks.*
- Action 7.1. *Providing infrastructure for and supporting the development of business incubators and industrial/technology parks.*
- Action 7.2. *Intensifying cooperation and technology transfer between scientific institutions and enterprises.*
- Action 7.3. *Supporting the patenting of inventions.*
- Action 7.4. *Supporting companies in implementing innovations and promoting innovative products.*
- Action 11.1. *Building rural cooperation networks and clusters serving to develop specializations.*
- Action 11.2. *Increasing the productivity of agriculture and marketability of farm products.*
- Action 11.3. *Restoring the number of bee colonies.*
- Action 11.4. *Increasing the economic efficiency and innovativeness of agriculture, including the development of ecological farming.*

In the area of the *Society*, the strategic objective is *Improving the quality of life and making better use of human and social capital in order to build a modern economy.* The chemical sector and the bioeconomy might lead to the popularization of activities within their industry. It would be possible by undertaking activities in the following measures:

- Action 18.3. *Increasing the region's potential in the field of higher education and research.*
- Action 18.5. *Adapting schooling and training systems to the requirements of the labour market.*
- Action 20.1. *Supporting the development of education in the field of mathematics and natural sciences.*
- Action 20.2. *Support for highly specialized education, especially in the fields of biotechnology, biomedicine, nanotechnology, photonics, optoelectronics, information (ICT) and cosmic technologies.*
- Action 24.3. *Health care and prevention.*

Within the next selected area: *Environment and energy*, the strategic objective was *Ensuring a diversified supply of energy and sustainable use of natural resources;* within this objective, enterprises from the chemical industry and bioeconomy can play a leading role in the implementation of tasks within the framework of activities, including:

- *Action 25.1. Building and upgrading energy and heat producing units in order to make them more environment-friendly and increase the share of renewable energy.*
- *Action 25.2. Expanding international electricity and natural gas transmission infrastructure; analysing the possibility of exploiting shale gas deposits, taking into account the relevant costs, and possibly building an extraction and transmission system.*
- *Action 26.1. Providing organizational and financial conditions conducive to the transfer of knowledge and eco-innovations.*
- *Action 26.2. Stimulating the development of eco-industry through implementing economical and organizational support mechanisms.*
- *Action 27.2. Monitoring environmental pollution.*
- *Action 27.3. Achieving and sustaining a good state and ecological potential of water and water-related ecosystems.*
- *Action 27.5. Protecting forests and areas of natural value.*
- *Action 27.7. Protection from air and noise pollution.*
- *Action 29.2. Adapting agriculture to climate change.*
- *Action 30.1. Limiting water, earth and air pollution in order to improve the quality of the natural environment.*
- *Action 30.2. Creating an integrated waste management system.*
- *Action 31.2. Increasing the energy security of towns and cities through building and upgrading local energy production facilities with particular focus on cogeneration, poligeneration and renewable energy.*

Within the other two areas: Space and transportation, and Culture and heritage, the role of the chemical sector will not be as significant, however, the involvement of enterprises in this sector is possible (indirectly, for example by developing appropriate technologies for chemical preparations that neutralize the negative impact of climate change on historic objects).

Given that, attention shall be drawn to the fact that SRWM acknowledges an important role of the chemical industry and the bioeconomy in the development of the Mazowieckie Voivodeship. Therefore, it should be recognized that the Mazovian authorities' approach to innovation and development of the region is comprehensive, based on a number of strategic documents that are coherent and complementary with each other.

## **6. Conclusions and recommendations**

### **6.1. Weaknesses and strengths of the management system of the Regional Innovation Strategy for Mazovia**

Analysis of the *Regional Innovation Strategy for Mazovia 2020* Analysis of the Regional Innovation Strategy for Mazovia 2020 enabled the identification of numerous strengths of the document. The key advantage of the Strategy is a correct diagnosis of areas with the greatest endogenous potential and defining the innovative potential of the region and subregional centres. Abovementioned aspects were outlined in Report No. 1 on support for innovation and the chemical industry in the context of *current status of implementation of Regional Innovation Strategies in Mazovia Region*, prepared for the purposes of this task.

Another significant strength concerning the Strategy is the already mentioned high level of stakeholder engagement at all stages of document management. An additional element that has

been developed by the RIS Managing Authority is the consistency and complementarity of activities undertaken by entities involved in the management of the Strategy. Given this, it is possible to observe not only a formal indication of stakeholders, but also a system enabling a broad and actual impact of entities on the development, updating, implementation and monitoring of the Strategy. Of an importance for stakeholders and local communities is the fact that assemblies of stakeholders are open and accessible, operating in a transparent manner, resulting in the transparency of their undertakings.

Furthermore, the flexibility of the Strategy is a significant factor. The adoption of smart specializations in the form of an attachment to the document means that in case of updating and possibly expanding the areas of smart specialization, e.g. for new priority research directions, a necessity to update the whole Strategy does not occur.

Prioritization and expansion of the areas of undertaken activities, through the development of *Priority research directions*<sup>37</sup>, *Implementation Programme for 2016-2017 for the Regional Innovation Strategy for Mazovia 2020*<sup>38</sup> and their regular updating as well as conducting evaluation and ongoing monitoring of the Strategy with the help of MES RIS results in a comprehensive approach to the issue, and in the meeting real needs of the region and stakeholders by the document.

Despite the indicated advantages, also the weaknesses of the Strategy management system were identified. Among the most significant negative aspects is the fact that there is no comprehensive policy to support the cooperation network, e.g. clusters. The clustering process is bottom-up, based on interpersonal links rather than institutional ones; for this reason, it shall be taken into consideration to use to a larger extent the possibilities resulting from the existing regulations in order to support clusters and cooperation networks of entities from the chemical and bioeconomy industries. The issues of clusters and cooperation networks was included in the Strategy, namely in the first and (to some extent) second strategic objectives. The existence of such broad strategic regulations results in the fact that it is not necessary to develop the cluster policy, as it has already been determined. Therefore, there are foundations necessary for the process of clustering of entities, translating into the support for innovation processes and an entrepreneurial discovery through the cooperation independent from sources of financing. The conducted research confirmed the fact that a considerable share of cluster initiatives disintegrated after the completion of projects involving such cooperation. Moreover, a large part of functioning clusters and cooperation networks is characterized by low levels of organizational maturity.

***There are new projects, but current cooperation is not based on institutional activities but on personal connections.***

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*Participant of the CATI interview, a representative of a company in the chemical sector*

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<sup>37</sup> *Priority research directions within the smart specialization of the Mazowieckie Voivodeship version 1.0, Warsaw 2017; Priority research directions within the smart specialization of the Mazowieckie Voivodeship version 2.0, Warsaw 2017.*

<sup>38</sup> *Implementation Programme for 2015 for the Regional Innovation Strategy for Mazovia 2020, Warsaw 2017, Annex to Resolution No. 433/32/15 of the Board of Mazowieckie Voivodeship of 7 April 2015; Implementation Programme for 2016-2017 for the Regional Innovation Strategy for Mazovia 2020, Warsaw 2017, Annex to Resolution No. 693/242/17 of the Board of Mazowieckie Voivodeship of 16 May, 2017*

As a weaker point of the Strategy management system can be considered the lack of a coherent information and promotion campaign addressed to target groups, despite the development of the Communication Plan for Regional Innovation Strategy for Mazovia, therefore it might be necessary to undertake a cohesive promotional and information campaign and training activities for entrepreneurs in this area.

*Entrepreneurs have no idea what the region wants from them, that is why they have to come and create a group, they do not see any added value, that's why it should happen through clusters. (...) it is important to develop a strategy: what is the benefit for the entrepreneur for operating in Mazovia? And what can be given to Mazovia? Because it works both ways.*

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*Participant of the CATI interview, a representative of a company in the chemical sector*

Abovementioned statement presents the fact that despite the significant development of the idea of clustering in Poland, Polish clusters are still relatively small and there is fewer of them compared to Western European countries. The clusters analyzed in this study are characterized by a relatively small number; the largest one - Mazovian Chemical Cluster - consists of 114 entities. For example, in Germany (except for small clusters associating approximately 30-40 entities) there are networks with several hundred entities, up to as many as 600<sup>39</sup>. Given this, it shall be a priority to build further links within already existing clusters in order to lead to greater concentration and integration of entities. Entrepreneurs observed the low level of social capital, proving it difficult to build links between companies. According to them, improving its quality is a condition sine qua non for the cooperation, including cooperation in the field of innovation, to develop. A positive example in this respect are clusters which created non-competitive links based on cooperation and mutual complementation, having achieved success.

*Clustering began to be successful because cluster managers like each other. Entrepreneurs, unfortunately, can be divided by fences and never talk to each other. Unluckily, there is a very low social capital and social trust, the task of the region is to make these people "link up" with each other. Sometimes it is not necessary to use money: we need to create a platform for action.*

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*Participant of the CATI interview, a representative of a company in the chemical sector*

## **6.2. Measures improving the management of the Regional Innovation Strategy for Mazovia**

Respondents of the research conducted for the purposes of preparing present report observed a number of measures that would be beneficial for the improvement of the implementation of the Regional Innovation Strategy and the development of the chemical sector and bioeconomy.

The main postulate of the respondents was to place greater emphasis on cooperation between managers and companies. Such cooperation could take place with the means of the organized study visits, which would result in learning the potentials. Such measure would be conducive to undertaking further joint steps and implementing joint development projects, through mutual knowledge of potentials.

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<sup>39</sup> <https://www.clusterportal-bw.de> (access: 29.05.2018).

Respondents also noted the need to support start-ups and young companies that often have innovative ideas, but they lack the means to implement them. Orienting measures at the support for start-ups should occur at an early stage - not only the labour market should be supported, but also higher education which is often a source of innovative ideas. In order to implement the postulates, the most important measure seems to be the support for cooperation between science and business and the emphasis on intersectoral cooperation, which may result in the introduction of innovative, unprecedented solutions to the economy. In this context, however, the foundation should be laid by developing an appropriate, innovation-friendly legal environment for entities in the chemical sector. Furthermore, respondents added that currently the chemical sector in Mazovia is still a reproductive sector, despite its potential. Therefore, in order to change this situation, it is necessary to ensure support in a wider scope than before, measures that aim at innovation but are very risky in financial terms. Due to such undertakings, more dynamic development and in the region the conditions for innovative and unique activity on the global scale would occur.

## 7. Expectations towards interregional cooperation

The conducted research has shown that the respondents have numerous expectations for interregional cooperation, but nevertheless, the current state of analysed matter was assessed positively.

Respondents indicated that it is necessary to create a policy of managing inter-cluster cooperation, given the fact that nowadays, despite the willingness of entrepreneurs to establish cooperation, the possibilities of its establishment are unstructured and thus the development of interregional cooperation is inhibited. The necessity to undertake measures in the legislative scope at the central level was emphasized. There is no separate legal act regulating the operation of clusters in Poland, however, this subject finds interest in the central authorities that conduct regulatory actions in the scope of cooperation and cluster initiatives<sup>40</sup>. The lack of structuralising of clusters' functioning noted by the beneficiaries should be explained as a relatively low awareness of the role and functions of clustering and low organizational maturity of enterprises to undertake such cooperation.

Respondents focused on creating system solutions for cluster policy in Mazovia. It was indicated that entities operating within clusters act very dynamically and initiate a very large number of activities, create good practices, and activities are implemented at both national and international level. Thus, clusters become a tool for implementing smart specialization enterprises.

***Clusters force us [entrepreneurs] to take certain actions, there are several of them and they are an exact emanation of smart specializations.***

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*Participant of the CATI interview, a representative of a company in the chemical sector*

Moreover, representatives within clusters and cooperation networks indicated that participation in undertakings implemented by cooperation networks strengthens their position on the market, while the enterprise itself is perceived as a creator of interregional cooperation.

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<sup>40</sup> <http://www.pi.gov.pl> (access: 29.05.2018).

***We are participants of the cooperation, we participate in a number of international projects, we are partners and project leaders... I have the impression that we are the creators of this interregional cooperation.***

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*Participant of the CATI interview, a representative of a company in the chemical sector*

Furthermore, it might be concluded that cooperation within clusters and interregional cooperation is developing in line with the expectations of its participants. The statements of the surveyed representatives concerning the absorption of funds from both European and national Funds reflect the dynamic nature and rapid development in this matter.

***Absorption of funds from the European Union and domestic Union is so considerable that, as observed in Mazovia, the amount of money is insufficient. We would find partners for this cooperation, but the sources of financing are already exhausted.***

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*Participant of the CATI interview, a representative of a company in the chemical sector*

In the context of the quoted passage, attention shall be drawn to the problem relating to the low level of awareness of some of respondents concerning the possibility to obtain financing. Entities participating in clusters and cooperation networks are considerably active in raising funds, however, this occurs mainly at the national level. Respondents rarely indicated applying for funds from the level of the European Commission, basing largely on regional and national operational programmes. Representatives of the surveyed entities also drew attention to financial constraints, which often, despite the will to cooperate, prevent or hinder its effectivity.

***Legal simplifications [are needed], even more money for cluster management in the scope of the chemical industry (...). A partnership with clusters is desirable in terms of social EU programmes: points are attributed for it, but there are no programmes strictly dedicated to the development of various services and value chains in clusters.***

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*Participant of the CATI interview, a representative of a company in the chemical sector*

According to the respondents, it would be of a benefit to co-finance activities in this scope, among others by co-financing the participation of entrepreneurs in trade fairs by the voivodeship. It was added that participation in such events poses a significant difficulty for enterprises trying to implement innovative solutions, while such undertakings constitute a considerable added value for entrepreneurs, which is a direct benefit for the region in which these entrepreneurs operate. However, such instruments existed under the ROP WM, and groups of enterprises could apply for them. The lack of participation of clusters in these competitions may be the result of an insufficient level of development of organizational cooperation between enterprises associated under these cooperation networks.

Respondents also noted that in order to strengthen interregional cooperation, not only the executive level should be involved in the decision-making process, but also regular employees, as they are directly involved in project implementation and are able to identify the needs, challenges and barriers they encounter in the fullest scope in their daily tasks.



In terms of interregional cooperation, a greater involvement of business support institutions was also expected. Said involvement would help entrepreneurs, especially small businesses, to development in an effective manner. Such assistance, especially at the beginning of the operations of mentioned companies, could better target their vision and development policy, and thus the priorities of undertaken activities. It was observed that the metropolitan area of Warsaw was considered a priority. Respondents believe that measures should be taken to encourage enterprises also from the remaining part of the region in order to establish interregional cooperation.

***It is important to designate appropriate destinations, key regions, and to introduce the world to our institutions, because Mazovia is not only Warsaw, mostly regional important institutions are not internationalized, this also applies to the R+D sector, researchers move between universities, but it is important to also contact companies.***

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*Participant of the CATI interview, a representative of a company in the chemical sector*

According to respondents, Mazovia is starting to be excluded in ongoing projects, which paradoxically may become an opportunity for interregional cooperation. The competences of universities, resulting from the projects conducted so far and in the field of interregional cooperation and cooperation between science and business, may cause the situation in which entities from other voivodeships are interested in establishing cooperation with universities from Mazovia. However, it was added that the region should also actively work on establishing cooperation.

***The region should go outside and not just invite into it. In projects, Mazovia is starting to be excluded: this is a fact, but this will strengthen regional cooperation. Other regions will cling to us only and exclusively because of our competences, even if entities will be located in other regions.***

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*Participant of the CATI interview, a representative of a company in the chemical sector*

Some of surveyed respondents unequivocally positively evaluated interregional cooperation.

***To be honest, cooperation is phenomenal now, the region gives support through letters of intent, and projects are generated. It would be necessary to take into account a larger number of people who generate ideas and distribute them in the region, there is a shortage of such people.***

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*Participant of the CATI interview, a representative of a company in the chemical sector*

Abovementioned enthusiastic opinion concerning the assessment of interregional cooperation reflects the fact that the activities undertaken by the voivodeship are perceived by their recipients as useful. The surveyed representatives noted that Mazowieckie Voivodeship belongs to the European Chemical Regions Network (ECRN), but does not use fully the possibilities related to membership in this unit. For this reason, the activity of Mazovia should be strengthened so that the region and its potential are noticed on the ECRN forum.

According to respondents, information and promotion activities are necessary to promote both the region and interregional cooperation. In this context, attention was also drawn to public funds, the

acquisition of which involves a long and complicated procedure. For this reason, in accordance with participants of the research, preferential conditions shall be introduced for entities from the chemical and bioeconomy industries in the area of raising funds, including, for example, facilitating the procedure for applying for funding or profiled contests.

*(...)It is important to develop a strategy: what is the benefit for the entrepreneur for operating in Mazovia? And what can be given to Mazovia? Because it works both ways. Public funds are difficult to access, the process of awaiting evaluation is long, it is a long process based on a lack of trust for entrepreneurs, application tools are difficult, it is difficult to understand "why this works this way" and when there is an idea, there is a lack of a person who would be able to combine different activities in areas.*

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*Participant of the CATI interview, a representative of a company in the chemical sector*

To sum up, the surveyed entities have numerous expectations regarding interregional cooperation and its development. Nevertheless, the cooperation in relation to entities operating in Mazovian region shall be considered effective. A considerable share of expectations is connected with the dynamics of activity and development of Masovian industry and science, resulting in a high level of expectations in the scope of the matters subjected to analysis.

## 8. Bibliography


1. Priority research directions within the smart specialization of the Mazowieckie Voivodeship version 1.0, Warsaw 2017;
2. Priority research directions within the smart specialization of the Mazowieckie Voivodeship version 2.0, Warsaw 2017;
3. Priority research directions within the smart specialization of the Mazowieckie Voivodeship version 3.0, Warsaw 2018;
4. Implementation Programme for 2015 for the Regional Innovation Strategy for Mazovia 2020, Warsaw 2017, Annex to Resolution No. 433/32/15 of the Board of Mazowieckie Voivodeship of 7 April 2015;
5. Implementation Programme for 2016-2017 for the Regional Innovation Strategy for Mazovia 2020, Warsaw 2017, Annex to Resolution No. 693/242/17 of the Board of Mazowieckie Voivodeship of 16 May, 2017;
6. Report on public consultations of the project of Regional Innovation Strategy for Mazovia 2014-2020 with smart specialization of the region, 27 February-3 April 2014, Warsaw 2014;
7. Regional Innovation Strategy for Mazovia 2020. Innovation support system and smart specialization of the region, constituting an annex to Resolution No. 23/15 of the Mazowieckie Voivodeship Assembly of 16 March 2015 with the amendment;
8. Regulations of Mazovian Innovation Council;
9. Regulations of work of working groups for smart specialization of the Mazowieckie Voivodeship;
10. Statute of the Mazovia Cluster for Energy Efficiency and Renewable Energy Sources, § 9, p. 6.;
11. Statute of the Mazovia Development Agency (unified text as for 16 April 2013), Resolution No. 1/2013 of the Management Board;
12. The Development Strategy of the Mazowieckie Voivodeship 2030. Mazovia as an Innovative Region, Annex to Resolution No. 158/13 of the Mazowieckie Voivodeship Assembly of 28 October 2013.

### Webpages:


1. <http://www.agrobiocluster.pl/>
2. <http://www.armsa.pl/>
3. <http://www.clusterportal-bw.de/>
4. <http://www.innowacyjni.mazovia.pl/>
5. <http://www.klasterchemiczny.com/>
6. <http://www.klasterodpadowy.com/>
7. <http://www.mae.com.pl/>
8. <http://www.mpnt.pl/>
9. <http://www.pi.gov.pl/>
10. <http://www.pppt.pl/>

## Annex – Description of stakeholders

### 1. Public institutions

<b>Name of the institution:</b> Marshal's Office of the Mazowieckie Voivodeship in Warsaw	
<b>Description of the main tasks and competences / Role in the implementation of the Regional Innovation Strategy for Mazovia 2020 (in points):</b> <ul style="list-style-type: none"><li>– Performing the function of the Managing Authority of RIS Mazovia;</li><li>– Developing and updating the Strategy;</li><li>– Implementing the Strategy;</li><li>– Conducting monitoring and evaluation of the Strategy implementation;</li><li>– Coordinating smart specializations of Mazovia;</li><li>– Moderating meetings with stakeholders.</li></ul>	
<b>Contact details:</b> Name and surname: Piotr Dylewski Position: Chief Specialist in the Department of Development and Management of the Regional Innovation Strategy Address: Al. Solidarności 61, 03-402 Warszawa Phone number: 022 59 79 952 Email address: piotr.dylewski@mazovia.pl Webpage: <a href="https://www.mazovia.pl/">https://www.mazovia.pl/</a>	

## 2. Cooperation networks of entities and clusters

<b>Name of the organisation:</b> Mazovia Chemical Cluster		 MAZOWIECKI KLASTER CHEMICZNY	
<b>Type of the organisation:</b> <input type="checkbox"/> Informal network of entities without legal personality • Network financed from projects / cluster without legal personality <input type="checkbox"/> Network of entities / Cluster financed from members' funds with legal personality			
<b>Type of funding</b> <input type="checkbox"/> membership fees <input type="checkbox"/> public funds <input type="checkbox"/> revenues from own activity <input type="checkbox"/> different, that is .....			
<b>Structure of the organisation / Members:</b> <u>Founding members:</u> Płock Industrial and Technological Park S.A., Mazovia Development Agency Plc., Fabryka Substancji Zapachowych "Pollena-Aroma" Sp. z o.o., CHEMTECH enterprise, COBRO – Packaging Research Institute, Institute of Industrial Chemistry, Institute of Organic Industry, Institute of Nuclear Chemistry and Technology, Warsaw University of Technology, University of Warsaw and Warsaw University of Life Sciences. <u>Organs:</u> Coordinator of the Cluster (Płock Industrial and Technological Park S.A.), the Council of Members and the Steering Committee..			
<b>Description of the main tasks and competences / areas of activities (in points):</b> <ul style="list-style-type: none"> <li>– Development of cooperation between science and business;</li> <li>– Development of B2B cooperation;</li> <li>– Science, research and development;</li> <li>– Activities aimed at internalization and promotion of the cluster's activities;<sup>2</sup></li> <li>– Acquiring external funds for research and development;</li> <li>– Educational activities and strategic planning.</li> </ul>			
<b>Priority in the field of innovation / Research areas:</b>			
<input type="checkbox"/> Special and small chemicals	<input type="checkbox"/> New polymer materials	<input type="checkbox"/> Bioeconomy	
<input type="checkbox"/> Hydrogen economy	<input type="checkbox"/> CO <sub>2</sub> economy	<input type="checkbox"/> Others, what? <i>Launching a natural product obtained by extraction methods; innovative packaging for a chemical product, an aromatic substance obtained by biotechnological methods</i>	
<b>Contact details:</b> Name and surname: Agnieszka Zdanowicz Position: Director of the Department of Urban Policy and Innovation ARM S. A. Address: The Płock Industrial and Technological Park, Ignacego Łukasiewicza 39 Numer telefonu: 505-838-053 E-mail: sekretariat@pppt.pl Webpage: <a href="http://www.klasterchemiczny.com">http://www.klasterchemiczny.com</a>			

**Name of the organisation:**

AgroBioCluster

**Type of the organisation:**

- Informal network of entities without legal personality
- Network financed from projects / cluster without legal personality
- Network of entities / Cluster financed from members' funds with legal personality

**Type of funding**

- membership fees
- public funds
- revenues from own activity
- different, that is .....

**Structure of the organisation / Members:**

The cluster includes enterprises, local government administration, research and scientific institutes as well as business environment institutions - a total of 64 members.

**Description of the main tasks and competences / areas of activities (in points):**

- identifying common competencies of cluster members and areas of cooperation;
- initiating development of products with added value resulting from joint production capacities and their commercialization on domestic and foreign markets;
- knowledge and technology transfer and international exchange of experience;
- building sectoral and intersectoral links between the cluster and its members, as well as establishing synergies with clusters and networks of cooperation of related industries (chemistry, cosmetics, life science, renewable energy, IT);
- initiating joint ventures and projects co-financed from EU funds, both domestic and international;
- organization of promotional, educational, training and information activities;
- internationalization of the cluster's activity and its members.

**Priority in the field of innovation / Research areas:**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Special and small chemicals | <input type="checkbox"/> New polymer materials   | <input type="checkbox"/> Bioeconomy                               |
| <input type="checkbox"/> Hydrogen economy            | <input type="checkbox"/> CO <sub>2</sub> economy | <input type="checkbox"/> Others, what?<br><i>Renewable energy</i> |

**Contact details::**

name and surname: Katarzyna Kowalska

Position: Vice president of the board of the foundation UNIMOS

Address: Chamber of Commerce and Industry of the Radom Region Rwańska 7 – I p. 26-600  
Radom

Phone number: 792 921 900

E-mail: k.kowalska@AgroBioCluster.pl

Webpage: <http://agrobiocluster.pl>

**Name of the organisation:**

Waste Management and Recycling Cluster

Klaster Gospodarki  
Odpadowej i Recyklingu**Type of the organisation:**

- Informal network of entities without legal personality
- Network financed from projects / cluster without legal personality
- Network of entities / Cluster financed from members' funds with legal personality

**Type of funding**

- membership fees
- public funds
- revenues from own activity
- different, that is .....

**Structure of the organisation / Members:** 58 entities, including 25 companies, 11 scientific and research units, 14 consulting companies, 6 chambers and foundations, inter-municipal association and a commune.

**Description of the main tasks and competences / areas of activities (in points):**

- creating a cooperation network in the area of industrial waste management and processing,
- supporting entrepreneurship and innovation in the field of waste management and creating conditions for effective commercialization of research results of universities and research and development units,
- support in increasing the competitiveness of entities belonging to the support network, implementing product, organizational or process innovations, development of sustainable technologies, human capital and exports,
- representing cluster entities outside, including participation in fairs, missions and national and international meetings and forums,
- promoting the activities of the cluster and its members, as well as promoting the use of all types of waste for the production of products,
- technical, technological, legal and marketing consulting, aimed at introducing new product and technological solutions to the market,
- advice on obtaining financial resources for the development and implementation of innovations for entities associated in the cluster and funds for the implementation of joint projects.

**Priority in the field of innovation / Research areas:**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Special and small chemicals | <input type="checkbox"/> New polymer materials   | <input type="checkbox"/> Bioeconomy                               |
| <input type="checkbox"/> Hydrogen economy            | <input type="checkbox"/> CO <sub>2</sub> economy | <input type="checkbox"/> Others, what?<br><i>Waste management</i> |

**Contact details:**

Name and surname: Jolanta Okońska-Kubica  
 Position: President of the company's management  
 Address: ul. W. B. Głowackiego 4a/15, 25-368 Kielce  
 Phone number: 533-649-605  
 E-mail: [biuro@klasterodpadowy.com](mailto:biuro@klasterodpadowy.com)  
 Webpage: <http://www.klasterodpadowy.com/>

### 3. Industry

<b>Name of the company:</b> Orlen		
<b>Indicators</b>		
Number of employees:	<input type="checkbox"/> < 10 <input type="checkbox"/> 10 to 49 <input type="checkbox"/> 50 to 249 <input type="checkbox"/> > 250	
Revenue:	<input type="checkbox"/> max. 2 mln EUR <input type="checkbox"/> max. 10 mln EUR <input type="checkbox"/> max. 50 mln EUR <input type="checkbox"/> more than 50 mln EUR	
<b>Description of the main tasks and competences / areas of activities (in points):</b> <ul style="list-style-type: none"> <li>- Production and processing of refined petroleum products;</li> <li>- Production of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms;</li> <li>- Production of raw materials, ferroalloys, iron and steel and steel products;</li> <li>- Production of pipes, ducts, closed sections and connectors of steel</li> <li>- Production of precious metals and other non-ferrous metals;</li> <li>- Production, transmission, distribution and trade in electricity;</li> <li>- Production of gas fuels; distribution and trade in gaseous fuels in a network system;</li> <li>- Activity related to reclamation and other service activities related to waste management.</li> </ul>		
<b>Priority in the field of innovation / Research areas:</b>		
<input type="checkbox"/> Special and small chemicals	<input type="checkbox"/> New polymer materials	<input type="checkbox"/> Bioeconomy
<input type="checkbox"/> Hydrogen economy	<input type="checkbox"/> CO <sub>2</sub> economy	<input type="checkbox"/> Others, what? <i>Extraction and processing activities of natural gas and crude oil</i>
<b>Contact details::</b> Name and surname: Position: Address: PKN ORLEN S.A., ul. Chemików 7, 09-411 Płock Phone number: Email address: Webpage: <a href="https://www.orlen.pl">https://www.orlen.pl</a>		



**Name of the company:**

The Płock Industrial and Technological Park


**PPPT**  
 PŁOCKI PARK PRZEMYSŁOWO-TECHNOLOGICZNY
**Indicators**

Number of employees:

- 
- < 10
- 
- 
- 10 to 49
- 
- 
- 50 to 249
- 
- 
- > 250

Revenue:

- 
- max. 2 mln EUR
- 
- 
- max. 10 mln EUR
- 
- 
- max. 50 mln EUR
- 
- 
- more than 50 mln EUR

**Description of the main tasks and competences / areas of activities (in points):**

- Administering investment areas in Płock,
- Administering office facilities,
- Active search and service provided for investors,
- Activities in the area of stimulating innovation - incubation, acceleration of start-ups,
- Activities in the area of improving the qualifications of companies in the vicinity of Płock - training activities,
- Cooperation with research and scientific centres to exchange knowledge about technology and the possibilities of its application,
- Searching for solutions to problems identified by the owners (PKN Orlen and the City of Płock) in the field of technological solutions.

**Priority in the field of innovation / Research areas:** Special and small chemicals New polymer materials Bioeconomy Hydrogen economy CO<sub>2</sub> economy Others, what?

- *Circular Economy*
- *Special and small chemicals*
- *Petrochemicals*
- *Fertilizers*
- *Cosmetic products*
- *Packaging*

**Contact details:**

Name and surname: Zbigniew Bednarski

Position: President of the Board

Address: 09-400 Płock, ul. Łukasiewicza 39

Phone number: +48 24 364 03 50

Email address: sekretariat@pppt.pl

Webpage: www: <http://www.pppt.pl>

**Name of the company:**

Mazovia Energy Agency

**Indicators**

Number of employees:	<input type="checkbox"/> < 10 <input type="checkbox"/> 10 to 49 <input type="checkbox"/> 50 to 249 <input type="checkbox"/> > 250
Revenue:	<input type="checkbox"/> max. 2 mln EUR <input type="checkbox"/> max. 10 mln EUR <input type="checkbox"/> max. 50 mln EUR <input type="checkbox"/> more than 50 mln EUR

**Description of the main tasks and competences / areas of activities (in points):**

- contribution to the implementation of national and regional objectives in the field of renewable energy sources and energy efficiency,
- sustainable use of regional energy resources - planning and programming local development,
- energy issues in rural areas - agriculture as a supplier and as the end user of energy,
- difficult energy tasks in the developing metropolitan area around the capital city of Warsaw,
- specific energy problems in county cities in the region,
- promoting the region among entities investing in renewable energy,
- monitoring of activities related to sustainable energy in the region.

**Areas of activities:**

- Renewable energy,
- Energy efficiency,
- Low-carbon economy,
- Raising funds for energy projects.

**Priority in the field of innovation / Research areas:**

<input type="checkbox"/> Special and small chemicals	<input type="checkbox"/> New polymer materials	<input type="checkbox"/> Bioeconomy
<input type="checkbox"/> Hydrogen economy	<input type="checkbox"/> CO <sub>2</sub> economy	<input type="checkbox"/> Others, what? <i>low-emission energy carriers IoT in the scope of energy</i>

**Contact details:**

Name and surname: Marek Pszonka  
 Position: Member of the Board  
 Address: Bitwy Warszawskiej 1920 r. 3/lok. 300, 02-362 Warszawa  
 Phone number: +48 22 290 29 42  
 E-mail: biuro@mae.com.pl  
 Webpage: <http://www.mae.com.pl/>

**Name of the company:**

Mazovia Science and Technology Park in  
Płońsk



**Mazowiecki Park  
Naukowo Technologiczny**

Park Spółdzielczy w Płońsku

**Indicators**

Number of employees:

- < 10  
 10 to 49  
 50 to 249  
 > 250

Revenue:

- max. 2 mln EUR  
 max. 10 mln EUR  
 max. 50 mln EUR  
 more than 50 mln EUR

**Description of the main tasks and competences / areas of activities (in points):**

- ensuring technology transfer between science and the economy;
- development of cluster initiatives, support for entrepreneurship, support for innovation in the agro-food sector and in related sectors, i.e. related to ecology and renewable energy sources, biotechnology and ICT;
- The park itself does not conduct research - it is a form of a cooperative, but its cooperatives are scientific institutes conducting scientific and development research.

**Priority in the field of innovation / Research areas:**

Special and small chemicals

New polymer materials

Bioeconomy

Hydrogen economy

CO<sub>2</sub> economy

Others, what?

*CO<sub>2</sub> economy and special molecules in the context of chemistry and in food applications.*

**Contact details:**

Name and surname: Małgorzata Rudnicka

Position: Director

Address: H. Sienkiewicza 11, 09-100 Płońsk

Phone number: 695265885

E-mail: malgorzta.rudnicka@mpnt.pl

Webpage: <http://www.mpnt.pl>

**Name of the company:**  
Mazovia Development Agency



**Indicators**

Number of employees:	<input type="checkbox"/> < 10 <input type="checkbox"/> 10 to 49 <input type="checkbox"/> 50 to 249 <input type="checkbox"/> > 250
Revenue:	<input type="checkbox"/> max. 2 mln EUR <input type="checkbox"/> max. 10 mln EUR <input type="checkbox"/> max. 50 mln EUR <input type="checkbox"/> more than 50 mln EUR

**Description of the main tasks and competences / areas of activities (in points):**

- regional development based on the development of residents' competences and support for entrepreneurs;
- implementation of development and pro-innovation projects for both groups and institutions (local government and social), which are located in the region, contributing to the sustainable development of the region;
- supporting the voivodeship self-government in implementing the abovementioned purposes.

**Priority in the field of innovation / Research areas:**


<input type="checkbox"/> Special and small chemicals	<input type="checkbox"/> New polymer materials	<input type="checkbox"/> Bioeconomy
<input type="checkbox"/> Hydrogen economy	<input type="checkbox"/> CO <sub>2</sub> economy	<input type="checkbox"/> Others, what? <i>Food, photonic, IT (economy 4.0.) and developing synergies between these industries, building bridges and adding value by linking them</i>

**Contact details:**  
Name and surname: Agnieszka Zdanowicz  
Position: Director of the Department of Urban Policy and Innovation  
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E-mail: a.zdanowicz@armsa.pl  
Webpage: <http://www.armsa.pl>

#### 4. Universities and research institutes



<b>Name of the institution:</b> Industrial Chemistry Research Institute		
<b>Number of experts:</b> three groups of positions: scientific, research and engineering, and technical, in total approx.100 people, including nearly 67 people being research and development workers		
<b>Type of institution</b>		<b>Research category</b>
<input type="checkbox"/> University <input checked="" type="checkbox"/> Research institution <input type="checkbox"/> R+D serviced by industrial enterprises		<input type="checkbox"/> Primary research <input type="checkbox"/> Industrial research <input type="checkbox"/> Experimental development works
<b>Description of the main tasks and competences / areas of activities (in points):</b>		
<ul style="list-style-type: none"> <li>– Scientific, industrial and development research in the field of chemical and technical sciences;</li> <li>– Commercialization and implementation of R+D work results into industrial practice;</li> <li>– Preparing analyses and expert opinions and providing consultancy services in the field of chemical chemistry and technology;</li> <li>– Scientific and research cooperation with domestic and foreign entities.</li> </ul>		
<u>Strategic areas of ICRI operation:</u>		
<ul style="list-style-type: none"> <li>– Modern polymer materials and composites;</li> <li>– Recycling and zero-emission technologies;</li> <li>– Electro mobility - hydrogen fuel cells and electrochemical energy sources;</li> <li>– Biomedical technologies, household chemistry.</li> </ul>		
<u>Additional ICRI research areas:</u>		
<ul style="list-style-type: none"> <li>– Electrochemistry;</li> <li>– Research on the properties of plastics;</li> <li>– Pilot and low-volume production;</li> <li>– Modelling of technological processes (ChemCad and similar);</li> <li>– Expertise and chemical analysis;</li> <li>– Development strategies for industries, raw materials and chemical products.</li> </ul>		
<b>Priority in the field of innovation / Research areas:</b>		
<input type="checkbox"/> Special and small chemicals	<input type="checkbox"/> New polymer materials	<input type="checkbox"/> Bioeconomy
<input type="checkbox"/> Hydrogen economy	<input type="checkbox"/> CO <sub>2</sub> economy	<input type="checkbox"/> Others, what? <i>The economy of closed circuit</i>
<b>Contact details:</b>		
Name and surname: PhD. Eng. Paweł Bielski / PhD. Eng. Ewa Śmigiera		
Position: Director of the Institute of Industrial Chemistry / acting Deputy Director for Research		
Address: Industrial Chemistry Research Institute, Rydygiera 8, 01-793 Warszawa		
Phone number: 22 633 97 98 / 22 568 22 18		
E-mail: ichp@ichp.pl		
Webpage: <a href="http://www.ichp.pl">http://www.ichp.pl</a>		

<b>Name of the institution:</b> Warsaw University of Technology		
<b>Number of experts:</b> Professors: 530, tutors: 1150, PhD students: 954		
<b>Type of institution</b>		<b>Research category</b>
<input type="checkbox"/> University <input type="checkbox"/> Research institution <input type="checkbox"/> R+D serviced by industrial enterprises		<input type="checkbox"/> Primary research <input type="checkbox"/> Industrial research • Experimental development works
<b>Description of the main tasks and competences / areas of activities (in points):</b> <ul style="list-style-type: none"> <li>– Didactic activity;</li> <li>– implementation of research and development works;</li> <li>– activities aimed at working with the external environment;</li> <li>– activities of a directly cultural and social nature, related to running PW Junior, Bo-Bo Technika, Teatr, Orkiestra.</li> </ul>		
<b>Priority in the field of innovation / Research areas:</b>		
<input type="checkbox"/> Special and small chemicals	<input type="checkbox"/> New polymer materials	<input type="checkbox"/> Biogospodarka
<input type="checkbox"/> Hydrogen economy	<input type="checkbox"/> CO <sub>2</sub> economy	<input type="checkbox"/> Others, what? .....
<b>Contact details:</b> Name and surname: Marcin Postawka Position: Deputy director Address: Center for Innovation Management and Technology Transfers at the Warsaw University of Technology, Rektorska 4, 00-614 Warszawa Phone number: 22 234 15 65 E-mail: marcin.postawka@pw.edu.pl Webpage: <a href="https://www.cziitt.pw.edu.pl/">https://www.cziitt.pw.edu.pl/</a>		

**Name of the institution:**

Military Technical Academy

**Number of experts:** 133 people, including 92 independent researchers**Type of institution**

- University  
 Research institution  
 R+D serviced by industrial enterprises

**Research category**

- Primary research  
 Industrial research  
 Experimental development works

**Description of the main tasks and competences / areas of activities (in points):****Modern photonic materials:**

- liquid crystal materials - design, synthesis, purification, research of basic properties;
- inorganic crystals, glass and composites - design, synthesis, testing of basic properties;
- complex semiconductor structures - photodiodes and uncooled and multispectral electromagnetic radiation detectors;
- photonic optical fibres structures - non-telecommunications applications, sensors.

**Dangerous materials and protection against them:**

- new explosives - technology, analysis, properties research, modelling;
- instrumental techniques for the detection and analysis of hazardous materials, including industrial and toxic agents;
- nanoporous carbon and silica sorbents - synthesis and testing of adsorptive properties.

**Construction and multifunctional materials:**

- tests of metal powders and sinters as well as ultra-fine metal alloys;
- studies of melt deformation processes;
- technology of intermetallic gradient materials for elements of light ballistic shields;
- obtaining and testing properties of nanomaterials for hydrogen storage.

**Priority in the field of innovation / Research areas:** Special and small chemicals New polymer materials Bioeconomy Hydrogen economy CO<sub>2</sub> economy Others, what? *photonics***Contact details:**

Name and surname: Prof. Jerzy Choma, PhD. Eng.

Position: Director of the Institute of Chemistry

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E-mail: jerzy.choma@wat.edu.pl

Webpage: <http://www.wtc.wat.edu.pl/>