A Concept of the Baltic Institute of Logistics as a Centre of Logistic Excellence Set up in Słupsk, Pomerania Province, Poland

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Due to the insufficient critical mass of scientific expertise, and location between two the most developed centres of science in Pomerania, the Słupsk region has suffered from the lack of scientific coordination of its economic, social and cultural development. This paper, based on SWOT analysis prepared by authors, provides a comprehensive concept of a new scientific centre of excellence to be established in Słupsk. The Baltic Institute of Logistic headquartered in Słupsk (when established) will provide the necessary scientific expertise (think tank) and will play the coordinating role in assuring the growth and competitive position of the City of Słupsk and its entire region as well as contribute to the Intelligent Specialization Smart Port & City of the Pomerania Province (playing the role of the centre of logistics excellence).

Keywords: Baltic Institute of Logistics, centre of excellence, Pomerania Province.

1. INTRODUCTION

Despite its strengths, the Polish Research and Innovation (R&I) landscape presents a lot of structural disparities, with research and innovation excellence concentrated in a few geographical zones. These disparities are due to, among other reasons, the insufficient critical mass of science and centers having sufficient competence to engage regions strategically in a path of innovative growth, building on newly developed capabilities (such as logistics as an intelligent/smart specialization).¹

Structural transformations of the nineties influenced all regions of Poland; their positive and negative economic and social results affected all spheres of life including the R&I activities. Transformation processes originated in spatially differentiated social and economic conditions that intensified the differences of the development level of particular regions and in consequence led to a considerable spatial differentiation of conditions, quality of life and options of development of region, industry, science and people.²

This “pattern” has affected, among other Polish regions, the Great Pomerania region consisting of Pomeranian and West Pomeranian Voivodeships. A kind of bipolar structure of the main R&I centres’ location in Gdańsk and Szczecin has been established leading to the situation that a “territory between” has been left without any significant scientific support and coverage.

Słupsk is the second largest urban agglomeration after the Tri-City area in the Pomeranian Province, located between the main Polish complexes: Szczecin-Świnoujscie and the Gdańsk-Gdynia (see Figure 1).

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² Rydz E., Szmiełńska P., Unemployment In The Coastal Regions Of Poland Illustrated With Examples Of Coastal Gminas In West Pomerania Voivodeship, Pomeranian Pedagogical University, Słupsk 2010, p. 10.
The strategy for Słupsk and region states that it is crucial in the development of the city and its region, in contacts with potential investors and the search for external funds, including the EU, to co-finance the development. What is the most important, this development should be scientifically supported by the R&I center of logistic excellence.

The developed strategy puts emphasis on modernization of the city and region, the increase in its economic potential, further improvement in social and technical infrastructure and, above all, the improvement of inhabitants’ life quality and decrease in unemployment by creating new jobs. All these activities cannot be properly supported without logistic infrastructure and a logistic strategy.

And finally, all the above-mentioned factors triggered the idea for establishing the Baltic Institute of Logistics (BIL) with an office in Słupsk in order to support scientific coordination of all strategic and logistic activities leading to the city and region development.

1. The necessity of establishing BIL designed as a centre of excellence in logistic processes and a think tank for the local authorities of the region;
2. Proving that the decision to locate such a scientific and research centre in Słupsk is well-grounded.

The team working on the development of BIL concept set a working hypothesis which states that sustainable development of the Słupsk region, seen as a derivative of investments in the logistic sector, is not possible without any professional coordination of these operations at the regional level that could be realised by a scientific, research and development centre (that is the role of BIL).

The city plays an important role in the region bringing together many institutions and service providers. Słupsk is recognized as a major center of education and science in this region with University of Pomerania, the Hanseatic Higher School of Management and Economics School of Engineering, and many high schools. Słupsk also headquarters some institutions that support economic development of the city and region - Słupsk Chamber of Commerce and Economic Słupsk Association Innovation and Entrepreneurship.

The advantage of BIL location in Słupsk is also tech enterprises that are able to provide potential investors with all the facilities necessary for the media business. The city is also home to many financial institutions and insurance companies.

In 1997, Słupsk Special Economic Zone was created. Companies prefer to invest in the industry such as metal, automotive, construction and

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3 www.coislupsk.pl
plastics, but there is also a company falling within the traditional sectors of the economy of the region of Słupsk, like fish processing. In Słupsk, around 14 thousand entities which include companies with a European reputation, have been already settled\(^5\). The structure of business development is depicted in Figure 2.

The strategy developed in Słupsk lays down the most important areas of development, such as technical and social infrastructure, land use, human resource development and entrepreneurship, culture and cultural heritage, environment, redevelopment of the city, housing, sport, recreation and tourism and international cooperation and promotion of the City of Słupsk.\(^6\)

The emergence of various advantageous changes within the region and market environment, identified under preliminary SWOT analysis, inspired BIL Founders to search for the new forms of research cooperation under the teaming programme. The above mentioned changes include:

a. Increase of the importance of logistics in optimization of economic processes, in particular international processes related to the emergence of large investments in logistics (e.g. the Pomeranian Logistics Centre);

b. Dynamic development of the elements of logistics (including transit, processing and coproduction) in Pomerania and the need for their integration and coordination;

c. Extension of transport infrastructure financed by EU Funds (including the construction of A1 highway and S 6 express road);

d. There is no research organization located in Pomerania which would stimulate and support integration processes of the Coast with the logistics system of Poland (oriented to the South and in an international configuration e.g. Bothnian Green Logistic Corridor);

e. Changes in the vocational education system and the increase of the meaning of dual education system (basic system for combining theoretical skills with practical skills, based on the agreement with business partners and enhancing graduates’ employability);

f. Changes in the system for financing studies and development – there is an emphasis on creating the research potential that would support local business projects;

g. Social and demographic changes in Pomerania – preventing young people and professionals from leaving to rapidly developing regions.

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6 www.coislupsk.pl
The background elements identified in this way together with the analysis of the internal potential made it possible to perform a SWOT analysis of the project. This analysis, in turn, led to the identification of the opportunities, threats, strengths and weaknesses of BIL (Table 1).

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<tr>
<th>Opportunities</th>
<th>Threats</th>
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<tr>
<td>1. There is not any similar institution in the nearest market environment</td>
<td>1. Some substitute services have appeared in the market to replace the expertise services</td>
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<td>2. Between the years 2014 and 2020 logistics is defined as the priority specialisation in the strategy of Pomerania development</td>
<td>2. Insufficient understanding and lack of interest in BIL idea in local and regional authorities</td>
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<td>3. Greater awareness of expertise needs presented by leaders in the logistic sector</td>
<td>3. Słupski Ośrodek Akademicki (SOA) comes as a potential competitor to the commercial operations of BIL</td>
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<td>4. Signs of economic improvement and leaving recession behind</td>
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<td>5. A possibility to obtain financial support from the new financial strategy of the European Union</td>
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<td>6. Statutory and system changes in educational models</td>
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<td>7. Advantageous changes in the labour market – demand for specialists in logistics</td>
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<td>8. The System changes in transport infrastructure – S6 and A1 support the integration and expansion processes of enterprises.</td>
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<th>Strengths</th>
<th>Weaknesses</th>
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<tr>
<td>1. Own experienced, creative and well-motivated staff</td>
<td>1. There is no history of BIL and lack of recognition for this “brand”</td>
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<td>2. Own unique and market-verified scientific studies and business applications</td>
<td>2. Lack of experience in running such an institution</td>
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<td>3. Market-oriented and competitive strategy of BIL</td>
<td>3. Young team</td>
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<td>4. The new entity based on the latest technologies and business solutions – clusters</td>
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<td>5. The authorial team is oriented towards the process of continuous learning</td>
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<td>6. Knowledge, skills and high competences of the staff in dual education</td>
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<td>7. Complementarity of entities in the field of their resources</td>
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Source: own elaboration

3. THE BIL IDEA

The founders of the Baltic Institute of Logistics actively participated in the scientific and economic life in search of new cooperation forms and methods that would include the activities conducted by the research organizations and economic entities of Pomerania in respect of broad logistics processes. The idea for establishing the Baltic Institute of Logistics (BIL) with its office in Słupsk originated in 2013, when the First Regional Forum of Logistics in Słupsk was held.

There it was decided that BIL should be established as a think tank for the region of Słupsk with the consideration of the highest international standards. It should also come as a centre of excellence in the field of logistics for the whole Pomerania Province, which would contribute, to the Intelligent Specialization Smart Port & City in the horizontal field.  

**Justification:**

- So far in the region there has not been developed any independent scientific and research centre in the form of an institute, dedicated to the field of logistics; considering the development of IS SP&C and the dominating role of logistics in economic processes of the region comes as a necessity;
- Establishing BIL will create a universal and independent platform to coordinate scientific

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8 M. Zawiślak, Nowe role i zadania regionalizmu [w:] Materiały i Studia do Regionalizmu Słupskiego, tom XI, STSK, Słupsk 2010, pp. 95-106
and research support for IS SP&C. Its beneficiaries will be all partner entities, concerned external units and the authorities of the Słupsk sub-region and the province;

- Establishing BIL will make it possible to start interdisciplinary, inter-university and partner (science + business) scientific, research and development work (university and technical university);

- It will cause the increase in “the critical mass” of the scientific potential by limiting the initiative dispersion and implementing the synergy effect, optimisation and rationalization of costs in the realisation of joined and integrated (common) projects;

- Establishing BIL will come as a system solution in the region, and it will become a permanent effect of IS SP&C creation process (by providing laboratories, simulators, trainers, common databases for scientific research, etc.; new major courses and educational programmes for logistic specialists which will meet the requirements generated by the development of IS SP&C);

- Cooperation with foreign partners (DVWG, FHS) may have teaming for excellence character (recommended as a model by the EU agendas to obtain EU funds in the future);

- Establishing BIL with its headquarters in Słupsk will assure new recognition of the Słupsk region as a perfect base for the developed complex services connected with the implemented IS (e.g.: providing expertise services, analyses, audits, foresights, BPO in accountancy, IT, customer service, etc.) This will considerably increase the interest of scientific centres and business entities in the region.

- It will also become a countermeasure against regional exclusion and negative urban and demographic trends in the region of Słupsk; it will optimize costs – lower municipal taxes, and it will improve the local economic conditions. It will also affect harmonious development of the province.

4. BIL STRATEGIC FOREIGN PARTNER - GERMAN ASSOCIATION OF TRANSPORT SCIENCES (DVWG)

Under Horizon 2020 EU financial program there is an option for supporting such ideas of regional cooperation in order to accelerate the growth and development by participation in Teaming for excellence. Teaming for excellence addresses this challenge by creating or upgrading centers of excellence, building on partnerships between leading scientific institutions and low performing partners that display the willingness to engage together on this purpose.9

Partner organizations have to explain clearly their vision for the establishment of a new Centre of Excellence that would be hosted in the low performing Member State or region involved. This will include details on the long-term science and innovation strategy of the future Centre. Furthermore, the idea should include a clear analysis of how this strategy would fit in the relevant Smart Specialization Strategy of the participating low performing Member State or region. The BIL founders have addressed a request for cooperation in establishing the BIL in Słupsk to the German Association of Transport Sciences (DVWG) and have been granted a positive response.

The DVWG is a scientific organization, which is actively engaged in discussing and publishing current topics and questions regarding transport. Its purpose is the promotion of transportation sciences in all its disciplines.

At the European level, the DVWG is committed to bringing together transportation science professionals from all European countries within the European Platform of Transport Sciences (EPTS). The Association organ is the journal Internationales Verkehrswesen, which is among the leading international scientific journals in the field of transportation sciences. The DVWG is committed to the process of European unification and supports this development with its scientific activities.10

5. THE BIL INTERNATIONAL AND LOCAL PARTNERS

In the beginning of its operation, the Baltic Institute of Logistics plans to cooperate with the

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10 www.dvwg.de
following SUPPORTING PARTNERS:

a. Higher Hanseatic School of Management [Wyższa Hanzeatycka Szkoła Zarządzania] in Słupsk
b. School of Mechanical Engineering and Logistics [Zespół Szkół Mechanicznych i Logistycznych] in Słupsk
c. FACHHOCHSCHULE STRALSUND (FHS) (the only school within the region that offers Baltic Management Studies)

As soon as BIL strengthens its position, there will be other partnership agreements.

6. LEGAL FORM OF THE BIL

The legal form is Polish limited liability company (spółka z o.o). Shares will be owned by the group of scientists (founders) and the following entities:

a. KLASTER INNOKSZTALCENIE
b. STERLOG Usługi doradcze i konsultingowe w dziedzinie logistyki [Advisory and consultancy services in logistics]
c. Pomeranian Association of Employers [Stowarzyszenie Pracodawcy Pomorza]
d. Słupsk Chamber of Industry and Commerce [Słupska Izba Przemysłowo Handlowa]
e. Pomeranian Special Economic Zone [Pomorska Specjalna Strefa Ekonomiczna]

7. ORGANIZATIONAL STRUCTURE AND THE POWERS OF THE STATUTORY BODIES

The Baltic Institute of Logistics will be established in consideration of the best management knowledge and skills, in line with the provisions of the Polish Code of Commercial Partnerships and Companies.

BIL will adopt organizational solutions typical for the research organizations in order to achieve its goals and accomplish its mission.

The organizational structure reflects four basic functions of BIL - creative – oriented towards innovation, coordinating, integrating and educational11 (see Figure 3).

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Fig. 3. BIL organizational structure.
Source: own elaboration.

The powers of the General Meeting and the Management Board:

The powers of the General Meeting are specified in the Articles of Association and set out in the Polish Code of Commercial Partnerships and Companies.

The Management Board of the Institute will manage the affairs of the company and represent it in line with the provisions of the Articles of Association, the Polish Code of Commercial Partnerships and Companies, resolutions of the

General Meeting and the guidelines of International Scientific Committee.

The powers of the International Scientific Committee:

The International Scientific Committee appointed by the BIL founders and strategic foreign partner, is independent and appointed for 5 years. The Committee will also have the powers applicable to the powers of the supervisory boards of commercial companies and partnerships. The key tasks of the International Scientific Committee will be as follows:

1. Selecting and inviting professors to become members (minimum 5 professors, experts in logistics, are expected to become members);
2. Positioning BIL operation as the forum of “competent judges” who comment on projects, select and accept the leaders of the scientific teams;
3. Creating and maintaining the highest educational level of carried out projects;
4. Finding excellent academics and experts in logistics for cooperation;
5. Creating the international leadership of BIL in the field of logistics, including active cooperation with the representatives of DVWG, FHS, Polish founders of BIL and the main higher schools within the region (University of Gdańsk, Szczecin University, Gdańsk University of Technology, Gdansk School of Banking);
6. Promoting the scientific excellence of BIL, in particular through regular evaluation of academic employees and the overall business of the Institute;
7. Authorizing long-term/strategic directions for scientific, development and implementation activities of the Institute;
8. Reviewing strategic and operational documents:
   i. thematic plans of scientific research and development and financial works of BIL
   ii. conclusions related to the merger, division and transformation of the Institute and its continuous cooperation with other legal persons,
   iii. organizational regulations of the Institute,
   iv. annual financial plan,
   v. annual financial statements,
   vi. candidates for deputy directors of the Institute, scientific secretaries and the leaders of organizational units of the Institute specified in the organizational regulations.
9. Evaluation of the Institute’s Management Board report on the company’s activity and financial statements for the subsequent financial years with regard to their conformity with the books and documents, as well as with the actual state of affairs, including:
   • Assessment of the management board proposals for the division of profits or the financing of losses,
   • Providing the General Meeting with the annual written report on the evaluations’ results,
   • The Committee may review all documents of the company,
   • The Committee may request the reports and explanations from the management board and the employees,
   • The Committee may review the state of the company’s assets.

8. THE VISION, MISSION, GOAL AND THE MAIN FUNCTIONS OF THE BALTIIC INSTITUTE OF LOGISTICS

The vision of BIL

Introduction of BIL into the field of logistics development on regional, and ultimately, on national level, gaining ability to raise and absorb the funds for conducting research activity, and exposure to the costs during and upon financing under Horizon 2020 Programme. The strategy for 2020 is to be awarded with the Centre of Excellence status. The vision is based on three factors:

a. Concentration of BIL activities within the field of logistics as smart specialization;
b. The geographic focus on countries located in the South Baltic Area, with particular focus on Germany, Poland, Lithuania, Latvia, Estonia and Ukraine (with respect to the nature of business relations with that region)
c. Location and area of direct impact: Słupsk, Pomerania Province, Poland

The Mission of BIL:

"Generating and implementing creative logistics system solutions which provide particular value added services in the concept of development of regional integrated logistics system to achieve strategic advantage based on the harmonious development of infrastructure and logistics systems”

The Goal:

To promote BIL as the Centre of Excellence in accordance with the highest international standards, whose operation is concentrated on scientific and technological cooperation in the field of logistics within the area of Pomerania Province, and ultimately, within the area of Baltic Sea States.

a. Basic functions of BIL

- Creative function – exercising this function will involve examining and creating new technological, technical, organizational and IT solutions to achieve the interoperability with the view to produce competitive advantage of the region based on modern and unique logistics solutions.
- Coordinating function – it refers in particular to coordination of logistics infrastructure investments (location of centres, roads construction) and coordination of the movement of goods between logistics supply chains based on the latest IT applications which facilitate cooperation between different entities.
- Integrating function – this function will involve searching and promoting technical, organizational and IT standards which can be applied to facilitate the flows within the region, their integration, spatial and technological consistency understood as a tool for the implementation of logistics strategy of the region (here, such tool is the standardization and certification)
- Educational function – enhancement of methods for cooperation with the key stakeholders of regional logistics system, development of the meaning of practical skills in education, training of logistics experts from the region by business practitioners, in laboratories, simulators and with the use of professional software within the framework of dual education.

b. The scope of research activity of BIL:

- Network modelling of the flow of resources within the region – movement of people, raw materials, cargo, products and waste, including the system solutions for monitoring, tracking, traceability.
- Optimization of logistics solutions on the industrial, public and strategic level (including strategy building, foresight analysis) etc.
- Preference studies and selection of system solutions in the selected areas of logistics and supply chains management.
- Designing and building logistics system for chosen entities (enterprises, public bodies, local government units).
- Testing technical, organizational and IT solutions as regards effectiveness, efficiency and ergonomics thereof.
- Developing innovative organizational, technical and technological solutions related to logistics to increase the compatibility ratio of logistics investments and implement the logistics strategy of the region.

c. The substantive scope of BIL activity:

- Urban logistics – commuter flows, the P+R concepts for the networks of neighbouring cities as regards daily commuting and tourism.
- Logistics for energy sector (paraffin, gas, renewable energy sources –RES)
- Transport interoperability and intermodality in relation to urban logistics, macro logistics and global logistics in particular in terms of transport corridors and land-marine logistics chains of supply;
- Eco logistics also as regards waste management;
- Logistics in agriculture including the so-called precision agriculture;
- Safety of logistics processes (as regards safety and security).
- Sourcing, production and distribution logistics (including storage systems)

The scope of the BIL activities and the research capabilities is summarized in Table 2.

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d. The structure and equipment of laboratories planned by BIL (minimal):

- Laboratory of material engineering (equipment for material durability testing, material science, non-invasive method for testing steel structures and other facilities of logistics engineering);
- Commodity laboratory;
- Electro technology and electronics laboratory;
- Computer laboratory of logistics systems (with the use of the following software: ERP, WMS, TMS, CAx, iGrafx to study logistics processes as regards logistics management, engineering graphics, IT support for optimization processes in logistics);
- Warehouse simulator with WMS system, and the use of barcode and RFID technologies.
- Robotic production line simulator.

e. Found raising

- EU funding
- Funds from local authorities
- Revenues from commercial activities (reports, opinions, copyrights, consultancy, advisory, training and educational services etc.);
- Funds received from NCN and NCBR. (National research and science authorities)

9. DEVELOPMENT PLAN

The founders of the Baltic Institute of Logistics can see the real opportunities for the establishment and long-term development of the new Scientific Research Organization. Their confidence is based on the following factors:

1. They have their own team of experienced, creative and motivated scientists.
2. The founders are also the authors of unique and verified research works and they implemented business applications for logistics
3. The new organization reflects the latest business solutions that combine science with enterprises representing European economy - Clusters
4. The founders are oriented towards the continuous learning process
5. The knowledge, experience and skills of BIL Founders are characterized by complementarity and innovativeness of solutions
6. Scientific experience and professional contacts of BIL founders assure the continuity of the Institute development for at least 15 years.

The establishment and development of the Institute is planned for the period of 8 years and is divided into three stages.
STAGE 1 – ESTABLISHMENT AND STRENGTHENING THE POSITION OF THE INSTITUTE

Year 1 – Preparation and organization of the Institute as regards its institutional role, appointing statutory bodies, including International Scientific Committee

Year 2 – Promotion and business expansion in the region
a. Organization of the Third Regional Forum of Logistics in Słupsk (annually)
b. Finding new supporting partners
c. Acquiring the certification privilege for global logistics standards
d. International studies “Multicriteria analysis of the competitiveness factors of entities in Transport and Logistics sector from the area of South Baltic States” based on Logistic Performance Index of the World Bank (annually)
e. Applications for fund raising (continuous process)

Year 3 – Identity creation
a. Implementation of strategic “7R” concept to train logistics experts
b. Implementation of LOGISTIC AUDIT 9A in the evaluation of logistic enterprises’ efficiency
c. Developing dual education system in logistics in Pomerania with the view of ultimately implementing such system in other parts of Poland
d. Commercialization of scientific research and business applications within the scope of activity area (continuous process)

STAGE 2 – INCREASE AND EXPANSION

Year 4 – Creating the leading position – international goods and services expansion
a. Creation of IT platform which would support risk management in logistics processes
b. Implementation and promotion of the IT platform- commercialization
c. Completion of works related to establishment of laboratories – commercialization and the use of laboratories

Year 5 – Settlement of the Stage 1 and 2 of the project and commencement of works related to the new development plan
a. Design and implementation of standards for certification of goods and services related to the operation of the Institute (as a distinguishing feature of BIL)
b. Appointing new members of International Scientific Committee

STAGE 3 – DEVELOPMENT AND OBTAINING THE CENTRE OF EXCELLENCE STATUS

Year 6 - Year 7 - Year 8 -

Implementation of research activity in accordance with the scope of activity area, commercialization of achieved results, gaining brand recognition of BIL as the Centre of Excellence

10. THE ASSUMED FINAL RESULT OF ESTABLISHING BIL AND ADDED VALUES FOR IS SP&C

- Achieving the status of a coordination centre for operations realised within the frames of IS SP&C, a think tank for the sub-region of Słupsk and a centre of excellence for the province;
- Increasing the efficiency of processes connected with the realisation of joined projects of IS; this will prevent duplication of enterprises, will improve the efficiency of the coordination processes and will enable the parties to obtain the synergy effect.
- BIL will become a forum of competent judges in the stage of a preliminary scientific analysis of the significance of new projects for IS SP&C – the projects will be assessed by self-government authorities and intermediary institutions;
- International Scientific Board of BIL will be composed of scientific experts in logistics (DVWG, FHS, Polish founders of BIL, academic scientists of leading universities in the region: University of Gdańsk, Gdańsk University of Technology, Gdynia Maritime University, Polish Naval Academy, WSB Gdańsk and other representatives of partner entities which participate in the realisation of the projects). It will coordinate, analyse and recommend cooperation (linking and integrating entities and projects of similar, complementary or substitutive objectives and fields) within the frames of projects realised in IS SP&C.
BIL will promote the idea of knowledge sharing as the complementation of the existing concept of information sharing (assuming that the exchange of know-how, skills and knowledge will contribute to the acceleration of the convergence process and more dynamic development of the region.

11. SUMMARY AND CONCLUSIONS

Maximising investments in research and innovation will enable the Słupsk region to function in a more streamlined and homogeneous way, allowing the individual strengths of each identified strategic areas to be optimised.

Establishing the BIL in Słupsk will provide new opportunities to all the parties involved, with real prospects for growth through tapping into new collaboration and development patterns, including the establishment of new scientific networks, links with local clusters and opening up access to new markets.

In long-time perspective, this will offer national and local research new possibilities for exploitation and value creation and boost the innovation potential of the region of Słupsk and Pomerania Province as a regions involved.

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