



Enhancing the Bilateral S&T Partnership with Ukraine*Advanced Innovative Approach

Deliverable Title	D3.6 – Brief report on detailing the setting up of Pilot Activity 1
Deliverable Lead:	DLR, NASU
Related Work package:	WP3 – Pilot Activities
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Dissemination level:	Public
Due submission date:	06/2013
Actual submission:	11/2013
Project Number	311839
Instrument:	Coordination and Support Action (CSA)
Start date of Project:	01/09/2012
Duration:	34 months

Abstract

One of the main BILAT-UKR*AINA objectives consists in providing support to the implementation of the JSTCC S&T roadmap by realizing pilot activities for suitable joint actions between stakeholders from Ukraine and EU countries.

The present report describes the setting-up of the first of these, Pilot Activity 1 (PA1), which supports the creation of a “Ukrainian National Technology Platform for Advanced Materials – UNTPAM” and started in July 2013.



Funded under the 7th Framework Programme of the European Community.

Versioning and Contribution History

Version	Date	Modification reason	Modified by
	26.8.2013	Final Concept Note	DLR, NASU
v.01	24.11.2013	Advanced Draft	DLR (largely based on existing material provided by NASU)
v.02	28.11.2013	Modified draft	NASU, ZSI
v.02	29.11.2013	Final Version	DLR

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Executive Summary

The present report describes the setting up of the first BILAT-UKR*AINA pilot activity, PA1, which supports the creation of a “Ukrainian National Technology Platform for Advanced Materials – UNTPAM”, thereby providing flexible support to the implementation of the evolving JSTCC S&T roadmap as one of the main project objectives.

The first section summarizes the formal procedures and developments in the BILAT-UKR*AINA project environment leading to realization of PA1 being started in July 2013.

In the second section, a detailed description of PA1 is provided, including its background, thematic coverage and objectives as well as a SWOT analysis and the PA1 workplan.

The next steps in the realization of PA1 are briefly touched in the third and last section.

1 THE WAY TO PA1 IN BILAT-UKR*AINA

One of the main BILAT-UKR*AINA objectives consists in providing flexible support to the implementation of the evolving JSTCC S&T roadmap by realizing two high-priority pilot activities for joint actions between stakeholders from Ukraine and EU countries, thematically focussed or addressing general instruments or mechanisms. The consortium's expertise and project resources are to be tapped for this.

The BILAT-UKR*AINA Description of Work elaborated in mid-2012 proposed already three such pilot activities which were considered good candidates at the time of conceiving the project:

- Establishment of a (“mirror”) technology platform in Ukraine,
- Facilitating participation of Ukrainian funding agencies in multilateral funding schemes and ERA-NET activities,
- Fostering cooperation and capacity building in technology transfer.

When BILAT-UKR*AINA held its kick-off meeting in September 2012, the consortium felt that, rather than starting by systematically setting up a broader priority list of candidate pilot activities, as originally planned, swift action was needed. Therefore, it decided for a pragmatic approach. This was based on the fact that material science and technology continue to be one of the main thematic priorities of Ukrainian and also EU research and development priorities. Moreover, the Frantsevich Institute for Problems of Materials Science of the National Academy of Sciences of Ukraine, together with other Ukrainian stakeholders, had already made some preparations for establishing a technology platform in the materials area (e. g. holding infodays and meetings with industry) and was ready to put more efforts into this. Against this background, it was decided to select it as Pilot Activity 1 (PA1). Thus, the development of an elaborate proposal was initiated.

In May 2013, the proposal on PA1 “Ukrainian National Technology Platform for Advanced Materials – UNTPAM” was unanimously accepted by the BILAT-UKR*AINA consortium during its Project Management Board meeting in Kiev and presented to the JSTCC during its 2nd meeting in Kiev.

Following this, PA1 was started in July 2013, with a planned duration of 18 months. A detailed description is presented in the following chapter.

2 DESCRIPTION OF PA1 “UKRAINIAN NATIONAL TECHNOLOGY PLATFORM FOR ADVANCED MATERIALS – UNTPAM”

INTRODUCTION

Sustainable developments of the majority of advanced states foresee the concentration of efforts at elaborating special tools for joining industrial capacities, research and management in different spheres. Industrial changes in turn depend essentially on market trends as well as on technical innovation on products and manufacturing.

The positive experience of EU states with the realization of specific bottom-up approaches shows evidence of fostering of research results and innovations in accordance with the most important demands of industry. The European Technology Platforms (ETP) became since 10

years of their existing a powerful tool that can be a good example for Ukraine to reach concrete solution for innovation and deployment of industrial policy (cf. also <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:299:0012:0016:EN:PDF>)

Up-to-date there are necessary conditions in Ukraine that require effective measures to preserve its S&T potential. Nowadays crisis in some sectors is caused by aging and significant deterioration of equipment from one side and low innovative activity of enterprises from another side. Furthermore, a lot of R&D and innovation products proposed by research institutes do not meet demands of industry and thus lose their efficacy.

As highlighted in the JSTCC meeting between Ukraine and the European Commission on 24 May 2013 by the Ukrainian side, the legal conditions for officially establishing Technology Platforms are already under establishment, and it is expected that the respective law will pass the Ukrainian Parliament in the year 2013. It is, however, likely that due to the budgeting and subsequent application cycles national means will not be operatively available before 1 January 2015.

The Ukrainian National Technology Platform for Advanced Materials (UNTPAM) will be set up to present the capacities of Ukrainian material science research and industry in this field to strengthen innovative developments, to facilitate coherence in national and international cooperation and to initiate the definition of a strategic research agenda for Ukraine. The BILAT-UKR*AINA contribution to UNTPAM is twofold:

- Pilot support for a few activities necessary to kick-off the process and its information requirement
- Connection with European Technology Platforms and international exchange of experiences

2.1 THEMATIC AREAS AND KEYWORDS

The relevant thematic areas for the activity are

- Advanced materials,
- Value added materials,
- Material sciences,

in particular

- Materials with desired properties,
- Manufacturing process,
- Technology transfer,
- Innovation development,
- Cooperation and connecting.

Even more specifically, the whole area of “advanced materials: production and application” is divided into several clusters (according to the order of Cabinet of Ministry of Ukraine of 07.09.2011 No. 942 about priorities in S&T till 2015):

1. Novel materials for electronic, optoelectronic, photovoltaic and energy saving applications,
2. Constructional materials,
3. Materials for various kinds of instruments,
4. Multifunctional nano- and biomaterials,

5. Perspective materials for transport application (aeronautic, automobile, shipping building and etc.),
6. Renewable energy sources materials,
7. Modern functional materials,
8. Carbon-based materials and devices,
9. Smart and responsive materials for engineering,
10. Materials for mining and drilling applications,
11. Materials for metallurgical industry.

2.2 OBJECTIVES

The Ukrainian National Technology Platform for Advanced Materials (UNTPAM) aims in particular at

- Establishing business relations between materials science researches and industrial sectors from one side and materials science researchers and business representatives from another side;
- Consolidation of the efforts of national producers and research engineers of advanced materials on innovation technologies in the field of materials science and common access to European and global markets.
- Setting up a communication mechanism on the basis of public-private partnership for development prospective technologies and novel products

The UNTPAM will be developed taking into account up-to-date analyses of the market needs. The activity will take into account experiences made during the implementation of the recently established Ukrainian agro-food technology platform, the first national technology platform registered in Ukraine.

For setting up the UNTPAM, preparatory events (round tables, brokerage/working meetings) will be held, involving also appropriate EU TPs and other initiatives like EuMaT (<http://eumat.eu/>), the European Space Technology Platform (ESTP) (<http://estp.esa.int/exp/E10534.php>), the European Technology Platform Manufuture, (<http://www.manufuture.org>) and the Fuel Cells and Hydrogen Joint Undertaking (FCH JU) (<http://www.fch-ju.eu/>), resulting from the European Hydrogen and Fuel Cell Technology Platform. Representatives of these will also be contacted for guidance. Options for partnering will be assessed and realized where possible. Pertinent experiences of the BILAT-UKR*AINA partners from Hungary, Poland and Romania as well as in the STCU context will be used in the commercialization and patent support field of activity and taking into account the STCU database of project results ready for commercialisation and tapped on occasion of an international workshop. For raising awareness and presenting the new TP to the public, it will be introduced with an international conference.

The expected long-term results of this activity include:

- Significant acceleration of implementation of scientific results;
- Improving of scientific research funding;
- Increasing of the number of working places;
- Access to the European and world markets.

2.3 INSTITUTIONS CONTRIBUTING TO THE REALIZATION OF PA1

BILAT-UKR*AINA consortium

*Coordinating BILAT-UKR*AINA consortium member:*

Center of Practical Informatics of the National Academy of Sciences of Ukraine (NASU)

*Contributing BILAT-UKR*AINA consortium members:*

- Polish Academy of Sciences (PAN)
- SC IPA SA (IPA)
- Regionális Információs és Fejlesztő Tudásközpont korlátolt felelősségű társaság (RCISD)

These BILAT-UKR*AINA consortium members will be involved in UNTPAM and receive allocated funding as explained in the table below in section 7 (Financial plan). Other BILAT-UKR*AINA consortium members may contribute if needed as part of their normal BILAT-UKR*AINA activities (there is no allocated budget foreseen for their potential input to PA1).

Ukrainian stakeholders not belonging to the BILAT-UKR*AINA consortium

Leading stakeholder and TP owner:

Frantsevich Institute for Problems of Materials Science (IPMS) of the National Academy of Sciences of Ukraine

Additional contributing stakeholders:

- Ukrainian State Agency for Science, Innovation and Informatization
- Kiev Chamber of Commerce
- Center of Small Business Development “Kharkov Technologies”
- Institute for Scintillation Materials of the National Academy of Sciences of Ukraine
- Agency of European Innovations (NGO, Lviv)
- Private enterprise “Research & Manufacturing Company “ALINEKA”

These stakeholders are crucial for the realisation and implementation of PA1. Project funding is, however, restricted to BILAT-UKR*AINA consortium members.

2.4 RELEVANT STATE OF THE ART AND BOUNDARY CONDITIONS

The current relevant state of the art and boundary conditions in Ukraine are:

- Advanced technological solutions and developments in material sciences were presented at the International S&T Forum “Science. Innovation. Technologies” in 2012 in Kiev within the fair and thematic session “Advanced material science and material technologies”. There are several results of research and development to be implemented in industry.
- A leaflet about the possible TP “Advanced material science and material technologies” was developed and disseminated through participants.

- IPMS (Frantsevich Institute for Problems of Materials Science) together with Kiev Chamber of Commerce and Industry has received the support for creating of a TP on advanced materials from more than 10 institutes of the NASU within the Departments of Physical and Technical Problems of Materials Science, of Physics and Astronomy and Chemistry as well as Center of small business development “Kharkov Technologies”, Agency of European Innovations (NGO Lviv,) and Private enterprise “Research & Manufacturing Company “ALINEKA”
- It is considered appropriate to generalize and analyse this experience.
- A working meeting with representatives of the Ukrainian State Agency for Science, Innovation and Informatization has been held in the last decade of October 2012 during which they informed about the preparation of the draft of a new law “On Innovation Activity” where such form as TP is foreseen.
- Several discussions involving various Ukrainian stakeholders have taken place and a draft list of potential TP participants (9 NASU institutes, 10 universities, 8 enterprises) was generated, with some contacts already established and confirmation of interest sought from the industrial institutions.

2.5 SWOT ANALYSIS

Strengths

- Materials science is one of the main thematic priorities of Ukrainian science;
- The main Ukrainian academic scientific players supported the creation of a national technology platform on advanced materials and they are ready for further cooperation in this field;
- The report “Recommendations on the setting up of Ukrainian Mirror Technology Platforms” (output of BILAT-UKR project, D4.9) has been presented for Ukrainian stakeholders;
- Kiev Chamber of Commerce and Industry may provide support for some of the events held in the context of the National Technology Platform;
- Ukrainian State Agency for Science, Innovation and Informatization has a vision on the necessity of this TP and is ready to endorse the initiative

Weaknesses/limitations

- Except in the academic sector (see above), there is no formal basis yet for the creation of a national technology platform in Ukraine and their further activity, although a new law “About innovation and innovation activity” is currently being drafted by several Ukrainian ministries, agencies, committees, also advocating new forms of business-university-academic cooperation.
- Absence of demands for research organizations from Ukrainian industrial partners for special materials with given complex of properties;
- The main initiative in creating a national Ukrainian technology platform originates from research partners, but not from industrial ones.

Opportunities

- The main priorities of Ukrainian material science development are the same as (or quite close to) European ones;
- There are several academic programmes in Ukraine funding the researches for the most demanded group of materials (nanomaterials, development of chemical basis of

creation of new materials, hydrogen energy program, program of space apparatus development etc.);

- The NASU presidium resolution “About forming and operation of innovative clusters in Ukraine” of 08/07/2009 envisages the strengthening of cooperation between academic institutions and those industrial entities that have permanent (or occasional) business agreements with research institutes and are real stakeholders in this process, i. e. the activity has a legal base at least at academic level;
- The range of stakeholders from industry was examined, i.e. aviation complex, space industrial companies, agricultural machine building factories, chemical enterprises, transport, and defined to be large end users of modern advanced materials for various applications;
- Interest on new advanced materials development and suggestions for cooperation were expressed during international fairs such as Hannover Messe, annual Izmir fair and others where NASU material science researchers exhibited their developments by European and non-European companies, including IMPEX, Crystalltechno Ltd. and others interested in Ukrainian technologies in material sciences)
- Preliminary discussion with leaders of European Technology platform EuMaT about support has been held on the creation of a National Technology Platform on Advanced Material in Ukraine and showed their interest to this process
- Establishing contacts and looking for common interest with Hydrogen and Fuel Cell technology Platform (HFP) and Future Manufacturing technologies (Manufuture)
- Participation in regular events carried out by ETPs

Threats

- The main industrial facilities in Ukraine that are managed by private owners and not under government auspice usually carry out the politics of technology import. They do not pay attention to domestic possibilities, skills and development.
- Absence of legal forms of bringing together the stakeholders, while existing structures do not foresee the mechanisms of interaction with governmental bodies as well as with large industrial companies. Absence of financial bank investment mechanisms for the development and successful activity of organizations – members of National Technology Platform would legally undertake their activity only as NGO (at least during the inception phase of the Technology Platform until the new Law foreseen eventually other options).

2.6 WORK PLAN

The PA1 activities will be carried out within the following work packages (WPs):

WP	Content	Timeframe	Expected result
1	Collecting research results ready for implementation in industry - from NASU institutes - from research entities - from universities and maintain this list permanently	01/07/2013 – 31/12/2014	The materials gathered will be organised as a kind of database

2	Market needs analysis in novel materials	01/09/2013 – 31/12/2013	Analytical report
3	Gathering information of potential industrial users and potential cluster partners from universities, high education institutes, all research entities	01/12/2013 – 28/02/2014	Composing the database, elaborating the roadmap
4	Events and training: <ul style="list-style-type: none"> - technological meeting with Ukrainian stakeholders - international workshop - launching conference (Kyiv) - study tour to ETP (tbd) - participation in ETP event - brokerage events within research, innovation and industrial fair 	November 2013 January 2014 Spring 2014 2014 Spring 2014 September 2014	Awareness rising, establishing contacts between stakeholders
5	Information dissemination: Preparation of information materials (logo design, leaflets, brochure, articles etc.)	Permanently, 1-st leaflet – until launching conference	Promoting the TP idea in Ukraine
6	Elaborating the Strategy Research Agenda (SRA) for UNTP “Advanced Materials”	October 2014 – December 2014	Edition of SRA and presenting it to appropriate ministries

3 THE WAY AHEAD IN PA1

PA1 is supposed to be realized until the end of 2014. After its official start in July 2013, the activities are gaining speed in autumn 2013, with the first event realized as an international technological meeting on “Nanotechnologies and nanomaterials for business and production” in Kiev in November 2013 and with the preparations of the other forthcoming events well under way. BILAT-UKR*AINA will be involved in the implementation of PA1 as described and also evaluate the implementation results.