R&I-LINKS2UA

STRENGTHENING R&I ⟶ LINKS TOWARDS UKRAINE

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List of Abbreviations

COSME	EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (SMEs)
DG	Directorate General
DoW	Description of Work
EC	European Commission
EEN	Enterprise Europe Network
EIB	European Investment Bank
ERA	European Research Area
EU	European Union
FP	Framework Programme
FP7	Seventh Framework Programme
H2020	Horizon 2020
JTI	Joint Technology Initiative
JU	Joint Undertaking
ICT	Information and Communication Technologies
IP	Intellectual Property
IPR	Intellectual Property Rights
MESU	Ministry of Education and Science of Ukraine
MS/AC	Member States/Associated countries
NCPs	National Contact Points
PPP	Public Private Partnership
PS services	Partner search services

RI-LINKS2UA	Strengthening Research and Innovation Links towards Ukraine
R&I	Research and Innovation
RCPs	Regional Contact Points
RTD	Research and Technological Development
S&T	Science and Technology
SRA	Strategic Research Agenda
STI	Science, Technology & Innovation
ZSI	Center for Social Innovations
WP	Work Package

Executive Summary

This report provides a summary of the Roundtable: Ukrainian Strategic Strengths in Horizon 2020. Exploring the possibilities of Ukrainian participation in the different Horizon 2020 R&I cooperation instruments, jointly organised between the project "Strengthening Research and Innovation Links towards Ukraine" (RI-LINKS2UA) and the Ministry of Education and Science of Ukraine. It was intended to identify and discuss options for enhanced science, technology and innovation cooperation with Ukraine, show experiences and lessons learned with PPPs/JTIs in EU MS as well as their role in the ERA, explore the opportunities for Ukraine participation in the PPPs/JTIs, present the Ukrainian initiatives, discuss and identify next steps for increased participation of public and private actors in PPPs/JTIs in Ukraine.

The event attracted policy makers, representatives of the implementing agencies, research institutions, industry, and SMEs etc from Ukraine and the EU countries

Roundtable took place at the Ministry of Education and Science of Ukraine, Tarasa Shevchenko Blvd 16, Kyiv, on 14 February 2017. The Roundtable was followed by the Expert Meeting: Exchange of good practices concerting the nomination and performance of the Horizon 2020 Programme Committee Members

1 Introduction

To further support the policy dialogue between stakeholders, the RI-LINKS2UA are planning to organise two dedicated Stakeholder´s fora in Kyiv. The first of them dedicated to Innovation support measures to trigger the R&I cooperation between the EU and Ukraine was organized back-to-back with presentation of PSF recommendations. It brought together the policy makers, representatives of the implementing agencies, research institutions, industry, and SMEsetc. from Ukraine and the EU countries.

The round table was organized under the general theme « Ukrainian Strategic Strengths in Horizon 2020. Exploring the possibilities of Ukrainian participation in the different Horizon 2020 R&I cooperation instruments ». In particular, the Round table seeks:

To show experiences and lessons learned with PPPs/JTIs in EU MS as well as their role in the ERA.

- To explore the opportunities for Ukraine participation in the PPPs/JTIs.
- To present the Ukrainian initiatives currently developing their concepts.
- To discuss and identify next steps for increased participation of public and private actors in PPPs/JTIs in Ukraine.

The objectives of the event were in line with the following recommendations of the PSF review report:

- Recommendation 17: The opportunities offered by Horizon 2020 should be reaped through adequate accompanying support measures and initiatives
- Recommendation 22: The association to Horizon 2020 should also be used as a source for policy learning
- Recommendation 24: Elaborate a cross-governmental Innovation Strategy and Action plan focusing on priority domains for science- and technology-based innovation

A detailed summary of this event including list of participants and round table agenda are provided below in this document.

2 Background

According to the RI-LINKS2UA description of action (DoA), holding of two Stakeholder Forums is a part of the project strategy focused on activities facilitating further integration of Ukraine into the European Research Area. In this line RI-LINKS2UA contributes to the general objectives stipulated in the EC's communication on "Enhancing and focusing EU international cooperation to research and innovation: A strategic approach", and contributes to the latest endeavors of the European Commission to further support, enhance and strengthen the STI cooperation with Ukraine. The RI-LINKS2UA project takes into account the new status of Ukraine as an associated country to the Horizon 2020 programme and through its activities supports the further integration of Ukraine into the European Research Area. In terms of

policy dialogue, RI-LINKS2UA aims to address all the relevant policy dialogue platforms mentioned above from the beginning of the project in order to establish a two-way communication: to inform the policy makers about the objectives, results and achievements of the project and, vice-versa, to receive guidance and support for a successful implementation and/or follow-up of its actions.

The back ground document for organisation and conduct of the Round Table « Ukrainian Strategic Strengths in Horizon 2020. Exploring the possibilities of Ukrainian participation in the different Horizon 2020 R&I cooperation instruments » was the concept developed by the MESU and ZSI and approved by the consortium.

The main purpose and objective of Roundtable « Ukrainian Strategic Strengths in Horizon 2020. Exploring the possibilities of Ukrainian participation in the different Horizon 2020 R&I cooperation instruments » was focused on the Public Private Partnerships and Joint Technology Initiatives, exploring the further development of multilateral cooperation initiatives and experience and obstacles faced during the implementation of PPPs and JTIs of the MS/ AC countries: Austria, Estonia, France, Germany, Moldova, Poland and Romania.

The high quality presentations were thorough and informative whereby a range of ideas, incentives, examples and experiences in connection with PPPs/ JTIs were shared. A number of points were raised that reveal a degree of consensus on what exactly preparations for PPPs should involve.

Experiences and good practices of PPP/JTI from EU Member States Perspective were presented by Toivo Räim, Adviser, Ministry of Education and Research, Estonia **(**Estonia's experience in involving the various stakeholders in PPP activities, Jan Skriwanek, German Representative of the IMI States Representative Group (SRG) on behalf of the German Federal Ministry of Education and Research (BMBF) (German experiences with JTI's - the example of Innovative Medicines Initiative (IMI), Krzysztof Grabowiecki, CIM-mes, (PPP concept impact on SME development – Polish case study, Domnica Cotet, member of Comittee, Director of Business Incubator Center Bucharest (How Romania – a "widening" country – implemented PPP in terms of strategy, political framework)

From the Ukrainian side, Ukrainian Initiatives in PPP/JTI were outlined on the policy and practical levels. Representatives of the Ministry of Education and Science of Ukraine**,** Ministry of Economic Development and Trade of Ukraine**,** Ukrainian League of Industrialists and Entrepreneurs, Ukrainian PPP Center shared their opinion and steps done to strengthen Ukrainian participation in PPPs and JTIs. Presentation of the Ukrainian PPP Initiative on "Resource Materials" made by Andrey Ragulya, Frantsevich Institute for Problems in Materials Science, National Academy of Sciences of Ukraine, National Business Model acceleration SMEs in Horizon 2020 in Ukraine: Public-private partnerships of Volodymyr Matiushko, independent expert East Invest 2, board member CEE BC, Kiev-Brussels, Ukrainian Energy Hub of Lyubomyr Nykyruy, Vasyl Stefanyk Precarpathian National University and "Challenges of the PPP in Ukraine: the recopy of success based on real

practical examples and national experience", Nadiya Boyko, Cassovia Life Sciences, Ukraine demonstrated the Ukrainian Initiatives and experience in PPP/JTI demonstrated the Ukrainian experience.

The European perspective was presented by DG Research and Innovation Policy officer Tierry Devars. He emphasized that effective public-private partnerships should be based on building mutually beneficial cooperation between researchers and industry. "It is necessary to build strong links between research institutions and industries, which will be focused to pave the way from basic research to their implementation" he stressed.
Roundtable was chaired by the Deputy Minister Maksym Strikha. Deputy Minister noted that initiated discussion is very in time and important for Ukraine. Past year a group of leading European experts conducted an audit and presented a report on the state of the research and innovation system of Ukraine. Part of the recommendations of this report concerned public-private partnership issues.

3 Roundtable Proceedings

3.1 Invitation

The invitation was prepared and sent to the relevant Stakeholders of the EU member states/associated countries and Ukraine well in advance before the event. In some cases, the project partners contacted the would-be participants of the Roundtable to give (when necessary) more details of the event.

3.2 Venue

The Roundtable was hosted by the Ministry of Education and Science of Ukraine at the following address: Boulevard Shevchenko, 16 (Conference Hall), Kyiv, Ukraine. The premises of the MESU was the ideal venue for the event as it attached greater importance to the Roundtable and helped to attract more attention to the variaty of instruments of the H2020 open for Ukraine as well as promote the results of the project.

3.4 Programme

The general idea of the event from one side was to demonstrate experiences and lessons learned with PPPs/JTIs in EU MS and from other side to discuss and identify next steps for increased participation of public and private actors in PPPs/JTIs in Ukraine.

3.5 Roundtable Materials

The participants were provided with the documents elaborated by the project partners.

The package included the following documents:

- Roundtable Agenda (Annex I)
- Project Flyer
- Booklet: Partnerships with Industry and Member States (Annex III)
- Evaluation Form (Annex V)

3.6 Participants

The Roundtable participants represented the policy makers, representatives of the implementing agencies, research institutions, industry, SMEs from, Austria, Estonia, France, Germany, Moldova, Poland, Romania and Ukraine, Representatives of the EC and the EU Delegation (List of registered participants, Annex II)

3.7 Presentations

The event started with the opening address made by Deputy Minister, Maksym Strikha. The European perspectives and opportunities for public-private partnership was presented by Tierry Devars, Policy officer, DG Research and Innovation.
Experiences and good practices of PPP/JTI from EU Member States Perspective were presented by Toivo Räim, Adviser, Ministry of Education and Research, Estonia, Jan Skriwanek, German Representative of the IMI States Representative Group (SRG) on behalf of the German Federal Ministry of Education and Research (BMBF), Krzysztof Grabowiecki, CIM-mes, Domnica Cotet, member of Comittee, Director of Business Incubator Center Bucharest. Ukrainian vision of the perspectives and practical experience of PPP/JTI from the State perspective were presented by representatives of the Ministry of Education and Science of Ukraine, Ministry of Economic Development and Trade of Ukraine, Ukrainian League of Industrialists and Entrepreneurs, Ukrainian PPP Center. Representatives of the RTI Community of Ukraine shared their own experience. The Roundtable presentation were published on the project webpage. (List of presentation, Annex IV)

3.8 Open discussions

After the presentations, the participants were invited to exchanging views on the following issues:

- Challenges and obstacles.
- How to involve a broad group of stakeholders?
- How to stimulate cooperation and involvement of different RTD funding bodies?
- How to enable involvement of the private stakeholders?

3.9 Promotional activities

- Announcement on the Roundtable was disseminated by the target group of the project well in advance and put on the web-sites of the RILINKS2UA Project, IncrEAST, EaP+, MESU, NASU, H2020 National Portal, web-pages of the H2020 Ukrainian NCPs

- The Roundtable participants were provided with the documents elaborated by the project partners
- All Forum materials including presentations are available on the project web-site at https://ri-links2ua.eu/object/event/303
- Press-Release: MESU, http://mon.gov.ua/usi-novivni/novini/2017/02/14/shhob-povnistyu-skoristatisya-mozhlivostyami-mizhnarodnoyi-spivpraczi/

4 Conclusions and Recommendations

Article 19 Public-private partnerships declares that Horizon 2020 may be implemented through public-private partnerships where all the partners concerned commit to support the development and implementation of research and innovation activities of strategic importance to the Union's Public-private partnerships shall be identified in an open and transparent way based on all of the following criteria:

- the added value of action at Union level;

- the scale of impact on industrial competitiveness, sustainable growth and socio-economic issues;

- the long-term commitment from all partners based on a shared vision and clearly defined objectives;

- the scale of the resources involved and the ability to leverage additional investments in research and innovation;

- a clear definition of roles for each of the partners and agreed key performance indicators over the period chosen

- competitiveness and industrial leadership or to address specific societal challenges.

The Roundtable showed that there is a lot of experience that has developed in a number of countries to date providing a strong basis for the elaboration of suitable PPPs. There emerged a convergent understanding that good PPPs need to be well prepared, and require political backing at a high level. Most of the presentations cited not only the positive financial aspect, but also the benefits the private sector can bring in terms of innovation, greater efficiency, and value for money. New legislation and political commitment are driving forces for the process. PPPs must fit well in the domestic sphere, being tailored to the institutional arrangements present in the country.

In line with the recommendation 24 of the PSF review report : Elaborate a cross-governmental Innovation Strategy and Action plan focusing on priority domains for science- and technology-based innovation, Law of Ukraine On the Public-Private Partnership which establishes the organizational and legal framework of the interaction of public partners with private partners and the basic principles of the public-private partnership on a contractual basis Ukraine should make the further practical steps associated with PPPs development, in particular:

• analyze the most suitable PPP structure for the local setting and project characteristics

• the public sector should be realistic about the skills and experience it has to develop and implement PPP – integrate private sector expertise if required

• PPPs must demonstrate additional value for money over and above traditional procurement systems and must be designed to maximize benefits to all parties according to their objectives

• Effective institutional and regulatory structures must be developed to manage and monitor PPPs.

5 Bibliography

- DoW, RILINKS2UA Project, GA692476
- REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020), Article 19 Public-private partnerships
- Input Paper: Research and Development (R&D) partnerships of the European Union
- Input Paper: PPP Initiative “Resource materials” EU-UA high-tech cooperation and potential for Smart Specialization for Ukraine

Annexes

Annex I- Roundtable Agenda

Міністерство освіти і науки України; THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION HORIZON 2020; R&I-LINKS2UA STRENGTHENING R&I → LINKS TOWARDS UKRAINE	
Date: 14 February 2017 Venue: Ministry of Education and Science Ukraine, 16, T. Shevchenko Blvd., Kyiv, Ukraine	
9:00 - 09:30	Registration & Welcome Coffee
09:30 – 09:50	• **Opening Statements – Moderators: Gorazd A. Weiss**, RI-LINKS2UA project coordinator, Centre for Social Innovation (ZSI), Austria/**Stella Shapoval**, Deputy Head of Department, Ministry of Education and Science, Ukraine/ • **Maksym Strikha**, Deputy Minister of Education and Science, Ukraine • **Anatoly Zagorodny,** Vice President of National Academy of Sciences of Ukraine • **Thierry Devars**, Policy Officer, DG Research & Innovation, European Commission • **Vira Rybak,** Project Coordinator for education sector, EU Delegation to Ukraine
09:50 – 10:15	1. **EU Public-Private-Partnership and Joint Technology Initiatives landscape, Ülle Must,** Chief Specialist, Estonian Research Council
10:15 – 12:00	2. **Experiences and good practices from PPP/JTI from EU Member States Perspective** **Moderator: Chantal Khan-Malek,** Deputy Director for bilateral Europe, Office of Europe of Research and International Cooperation (DERCI) National Centre for Scientific Research (CNRS), France • Estonia: ***Estonia's experience in involving the various stakeholders in PPP activities***, **Toivo Räim,** Adviser, Ministry of Education and Research, Estonia • Germany: ***German experiences with JTI's - the example of Innovative Medicines Initiative (IMI)*, Jan Skriwanek**, German Representative of the IMI States Representative Group (SRG) on behalf of the German Federal Ministry of Education and Research (BMBF) • Poland: ***PPP concept impact on SME development – Polish case study*, Krzysztof Grabowiecki**, CIM-mes, Poland • Romania: ***How Romania – a "widening" country – implemented PPP in terms of strategy, political framework,*** **Domnica Cotet,** member of Comittee, Director of Business Incubator Center Bucharest

	Discussion, Q&A
12:00 – 12:50	**Working Lunch & Networking**
12:50 – 13:50 13:50 – 15:20	**3. Ukrainian Initiatives in PPP/JTI:** • ***Presentation of the Ukrainian PPP Initiative on "Resource Materials"*, Andrey Ragulya,** Frantsevich Institute for Problems in Materials Science, National Academy of Sciences of Ukraine • **National Business Model acceleration SMEs in Horizon 2020 in Ukraine: Public-private partnerships, Volodymyr Matiushko**, independent expert East Invest 2, board member CEE BC, Kyiv-Brussels • **Ukrainian Energy Hub. Lyubomyr Nykyruy**, Vasyl Stefanyk Precarpathian National University • **"Challenges of the PPP in Ukraine: the recopy of success [based on real practical examples and national experience]". Nadiya Boyko,** Chief Scientific Officer, Cassovia Life Sciences, Ukraine **4. Discussion: *How to strengthen Ukrainian participation in PPPs and JTIs?*** • **Viktor Shovkaliuk,** Head of Innovation Department, Ministry of Education and Science of Ukraine • **Oleg Khymenko**, Deputy Head of Scientific and Technological Development Department - Head of scientific and technical infrastructure Division, Ministry of Education and Science of Ukraine • **Zapatrina Iryna**, Chaiman of the Board of Ukrainian PPP Center • **Tatyana Lisitsa,** Deputy head of Department, Ministry of Economic Development and Trade of Ukraine • **Stepankova Tetiana,** Vice-President of the Ukrainian League of Industrialists and Entrepreneurs • **EU Experts: Toivo Räim (**Estonia), **Jan Skriwanek,** (Germany), **Krzysztof Grabowiecki** (Poland), **Domnica Cotet** (Romania) • **Ukrainian Experts: Andrey Ragulya, Volodymyr Matiushko, Nadiya Boyko** **Guiding questions:** • *Challenges and obstacles.* • *How to involve a broad group of stakeholders?* • *How to stimulate cooperation and involvement of different RTD funding bodies?* • *How to enable involvement of the private stakeholders?* **Moderators: Gorazd A. Weiss**, RI-LINKS2UA project coordinator, Centre for Social Innovation (ZSI), Austria, **Stella Shapoval**, Deputy Head of Department, Ministry of Education and Science, Ukraine, **Yegor Dubinsky**, Advisor to Vice-President, National Academy of Sciences of Ukraine
15:20– 15:30	**Wrap-up: Stella Shapoval (MESU), Gorazd Weiss (ZSI)**

Annex II – List of Registered Roundtable Participants

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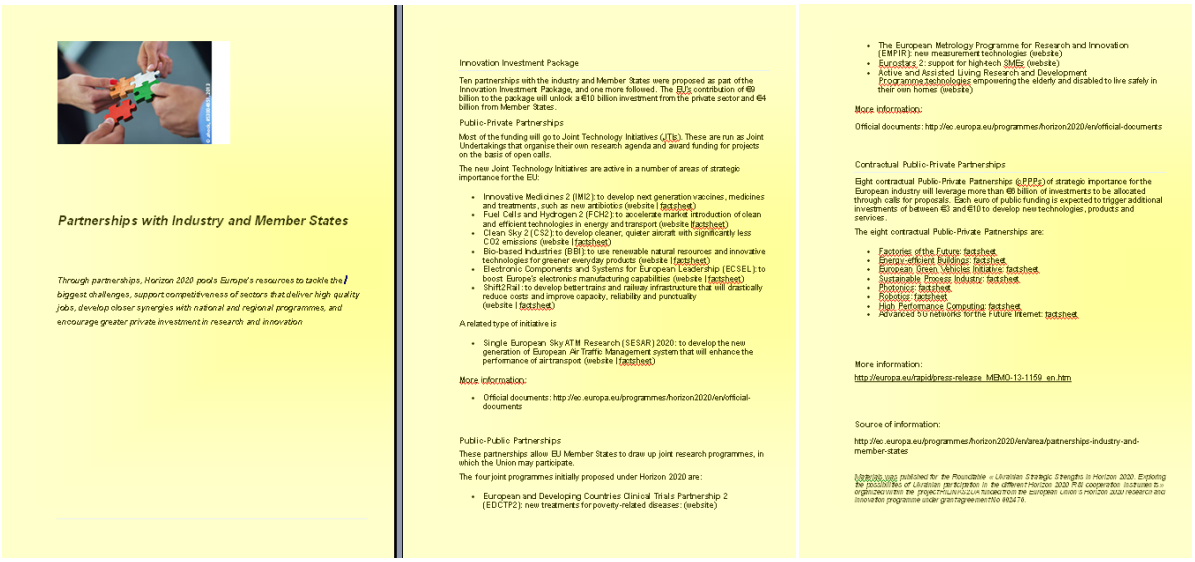
Annex III – Booklet: Partnerships with Industry and Member States
https://ri-links2ua.eu/object/event/303



Partnerships with Industry and Member States

Through partnerships, Horizon 2020 pools Europe's resources to tackle the biggest challenges, support competitiveness of sectors that deliver high quality jobs, develop closer synergies with national and regional programmes, and encourage greater private investment in research and innovation

Innovation Investment Package

Ten partnerships with the industry and Member States were proposed as part of the Innovation Investment Package, and one more followed. The EU's contribution of €9 billion to the package will unlock a €10 billion investment from the private sector and €4 billion from Member States.

Public-Private Partnerships

Most of the funding will go to Joint Technology Initiatives (JTIs). These are run as Joint Undertakings that organise their own research agenda and award funding for projects on the basis of open calls.

The new Joint Technology Initiatives are active in a number of areas of strategic importance for the EU:

- Innovative Medicines 2 (IMI2): to develop next generation vaccines, medicines and treatments, such as new antibiotics (website | factsheet)
- Fuel Cells and Hydrogen 2 (FCH2): to accelerate market introduction of clean and efficient technologies in energy and transport (website factsheet)
- Clean Sky 2 (CS2): to develop cleaner, quieter aircraft with significantly less CO2 emissions (website | factsheet)
- Bio-based Industries (BBI): to use renewable natural resources and innovative technologies for greener everyday products (website | factsheet)
- Electronic Components and Systems for European Leadership (ECSEL): to boost Europe's electronics manufacturing capabilities (website | factsheet)
- Shift2Rail : to develop better trains and railway infrastructure that will drastically reduce costs and improve capacity, reliability and punctuality (website | factsheet)

A related type of initiative is

- Single European Sky ATM Research (SESAR) 2020: to develop the new generation of European Air Traffic Management system that will enhance the performance of air transport (website | factsheet)

More information:

- Official documents: http://ec.europa.eu/programmes/horizon2020/en/official-documents

Public-Public Partnerships

These partnerships allow EU Member States to draw up joint research programmes, in which the Union may participate.

The four joint programmes initially proposed under Horizon 2020 are:

- European and Developing Countries Clinical Trials Partnership 2 (EDCTP2): new treatments for poverty-related diseases: (website)
- The European Metrology Programme for Research and Innovation (EMPIR): new measurement technologies (website)
- Eurostars 2: support for high-tech SMEs (website)
- Active and Assisted Living Research and Development Programme technologies empowering the elderly and disabled to live safely in their own homes (website)

More information:

Official documents: http://ec.europa.eu/programmes/horizon2020/en/official-documents

Contractual Public-Private Partnerships

Eight contractual Public-Private Partnerships (cPPPs) of strategic importance for the European industry will leverage more than €6 billion of investments to be allocated through calls for proposals. Each euro of public funding is expected to trigger additional investments of between €3 and €10 to develop new technologies, products and services.

The eight contractual Public-Private Partnerships are:

- Factories of the Future: factsheet
- Energy-efficient Buildings: factsheet
- European Green Vehicles Initiative: factsheet
- Sustainable Process Industry: factsheet
- Photonics: factsheet
- Robotics: factsheet
- High Performance Computing: factsheet
- Advanced 5G networks for the Future Internet: factsheet

More information:

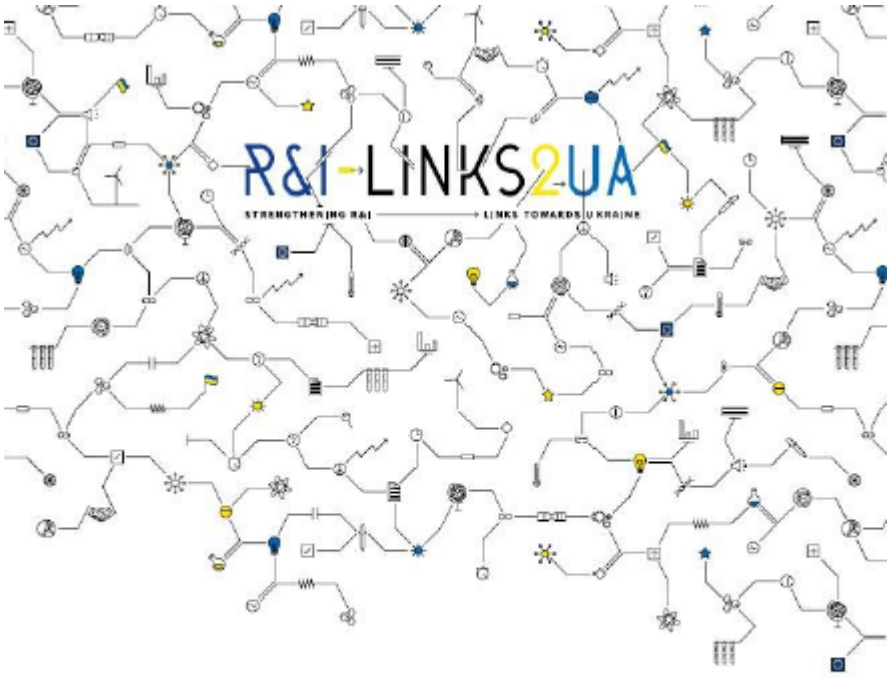
http://europa.eu/rapid/press-release_MEMO-13-1159_en.htm

Source of information:

http://ec.europa.eu/programmes/horizon2020/en/area/partnerships-industry-and-member-states

Booklet was published for the Roundtable «Ukrainian Strategic Insights in Horizon 2020. Exploring the possibilities of Ukrainian participation in the different Horizon 2020 R&I cooperation instrumen ts» organized within the project RI-LINKS2UA funded from the European Union's Horizon 2020 research and innovation programme under grant agreement No 692376.

- Input Paper: Research and Development (R&D) partnerships of the European Union (prepared by MESU, ETAG)



Input Paper: Research and Development (R&D) partnerships of the European Union

-

Annex IV, List of the Roundtable presentations

- **EU Public-Private-Partnership and Joint Technology Initiatives landscape**, Ülle Must, Chief Specialist, Estonian Research Council
- Estonia's experience in involving the various stakeholders in PPP activities, **Toivo Räim, Adviser, Ministry of Education and Research, Estonia**
- German experiences with JTI's - the example of Innovative Medicines Initiative (IMI), **Jan Skriwanek, German Representative of the IMI States Representative Group (SRG) on behalf of the German Federal Ministry of Education and Research (BMBF)**
- PPP concept impact on SME development – Polish case study, **Krzysztof Grabowiecki, CIM-mes, Poland**
- How Romania – a "widening" country – implemented PPP in terms of strategy, political framework, **Domnica Cotet, member of Comittee, Director of Business Incubator Center Bucharest**
- Presentation of the Ukrainian PPP Initiative on "Resource Materials", **Andrey Ragulya, Frantsevich Institute for Problems in Materials Science, National Academy of Sciences of Ukraine**
- National Business Model acceleration SMEs in Horizon 2020 in Ukraine: Public-private partnerships, **Volodymyr Matiushko, independent expert East Invest 2, board member CEE BC, Kiev-Brussels**
- Ukrainian Energy Hub. **Lyubomyr Nykyruy, Vasyl Stefanyk Precarpathian National University**
- "Challenges of the PPP in Ukraine: the recopy of success [based on real practical examples and national experience]". **Nadiya Boyko, Chief Scientific Officer, Cassovia Life Sciences, Ukraine**

- Viktor Shovkaliuk, Head of Innovation Department, **Ministry of Education and Science of Ukraine**
- Tatyana Lisitsa, Deputy head of Department, **Ministry of Economic Development and Trade of Ukraine**
- Tetiana Stepankova , Vice-President of the **Ukrainian League of Industrialists and Entrepreneurs**
- Iryna Zapatrina, Chaiman of the Board of **Ukrainian PPP Center**

Annex V – Evaluation Form

R&I-LINKS2UA
STRENGTHENING R&I → LINKS TOWARDS UKRAINE

EVALUATION FORM

Roundtable: PPPs and JTIs – exploring the further development of multilateral cooperation activities

14.02.2017, Kyiv, Ukraine

BACKGROUND INFORMATION

A1) Country of residence (please specify)

_____

A2) Which of the following best describes you? (please tick only one)

☐ Representative of a CSO
☐ Government administrator
☐ Municipal or regional administrator
☐ Politician
☐ Representative of a business organisation
☐ Member of the academic community (researcher in a University, professor, etc.)
☐ Citizen (no particular professional capacity relevant to the event)
☐ Other

A3) Gender ☐ Male ☐ Female

CONTENT OF THE EVENT

B1) Overall, how satisfied were you with the content of the event?

☐ Very satisfied
☐ Somewhat satisfied
☐ Somewhat dissatisfied
☐ Very dissatisfied

☐ Don't know

B2) Were you satisfied with the content and the quality of the sessions during the event? (please tick)

Sessions	Most satisfied	Satisfied	Moderately satisfied	Rather dissatisfied	Not at all satisfied
Experiences and good practices from PPP/JTI from EU Member States Perspective					
Ukrainian Initiatives in PPP/JTI					
How to strengthen Ukrainian participation in PPPs and JTIs					

B3) How would you grade the quality of the discussions during the event?

☐ Very good
☐ Good
☐ Poor
☐ Very poor
☐ Acceptable

B4) Do you think all relevant perspectives were adequately covered during the event?

☐ To a very high extent
☐ To a high extent
☐ To a low extent
☐ To a very low extent
☐ Don't know

B5) Please indicate the perspectives you think were missed/neglected:

_____
_____
_____
_____

PRACTICAL ORGANISATION OF THE EVENT

C1) Overall, how satisfied were you with the practical organisation of the event?

☐ Very satisfied
☐ Somewhat satisfied
☐ Somewhat dissatisfied
☐ Very dissatisfied
☐ Don't know

C2) How satisfied were you with the venue of the event?

☐ Very satisfied
☐ Somewhat satisfied
☐ Somewhat dissatisfied
☐ Very dissatisfied
☐ Don't know

C3) How satisfied were you with how time was distributed among the different sessions of the event? (Choose up to two)

☐ Too much time was spent on some of the agenda items

☐ The time spent on most agenda items was suitable

☐ Too little time was spent on some of the agenda items

C4) Do you agree that the purpose of the event was communicated clearly before the beginning?

☐ To a very high extent

☐ To a high extent

☐ To a low extent

☐ To a very low extent

☐ Don't know

C5) Do you agree that the sessions reflected adequately the stated purpose of the event?

☐ To a very high extent

☐ To a high extent

☐ To a low extent

☐ To a very low extent

☐ Don't know

EXPECTATIONS ON THE QUALITY OF THE EVENT

D1) Please indicate how you might use the new knowledge in the future, if at all?

_____
_____
_____
_____

D2) Would you recommend this kind of event to your colleagues and collaborators?

_____
_____
_____
_____

D3) Do you have any suggestions for improvement of similar events in the future?

_____
_____
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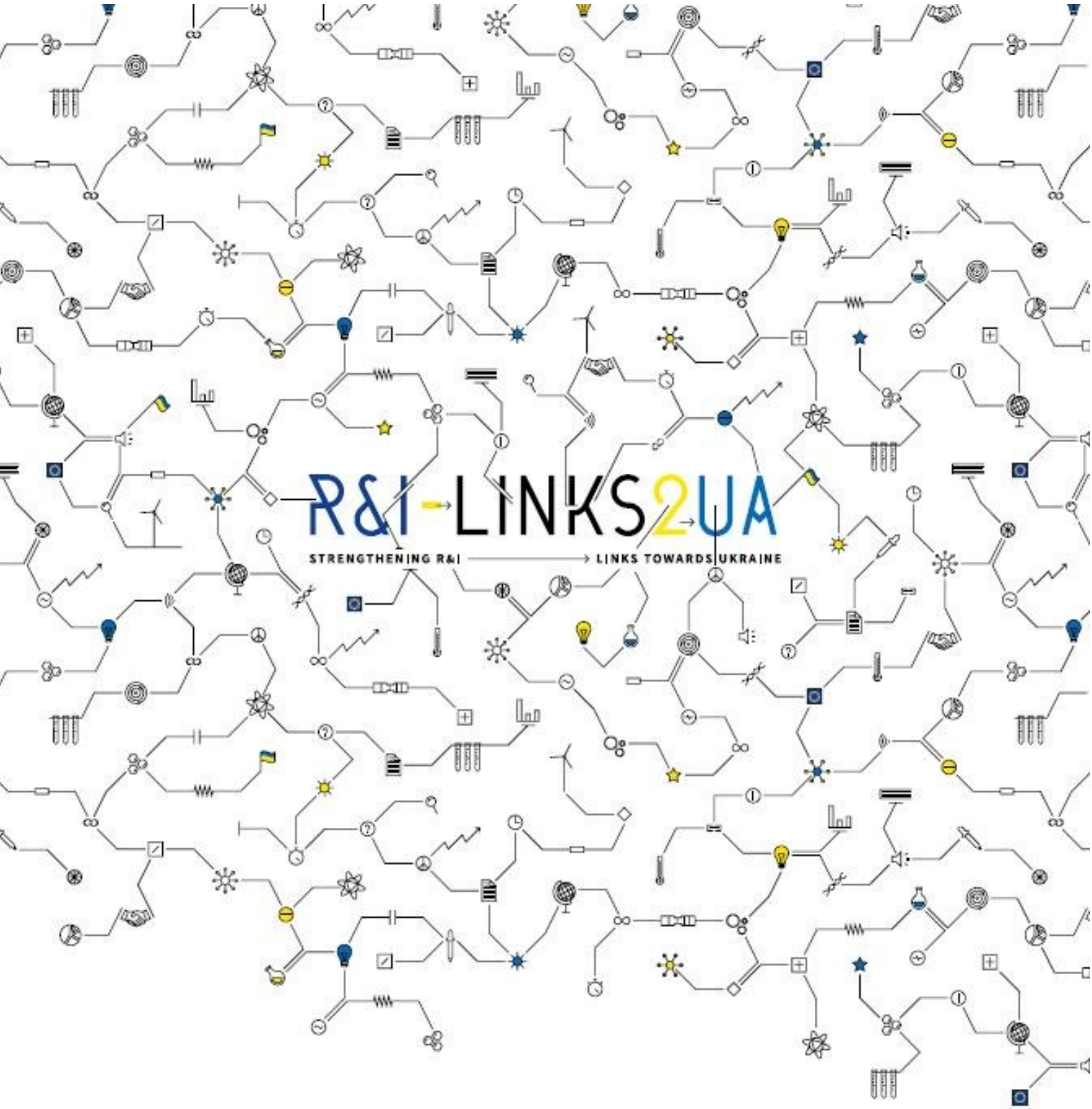
_____

WE THANK YOU FOR YOUR COOPERATION!

RI-LINKS2UA Consortium

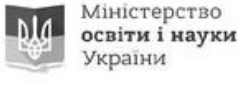


Input Paper

PPP Initiative “Resource materials” EU-UA high-tech cooperation and potential for Smart Specialization for Ukraine

This report constitutes a formal deliverable, **namely D1.5 Input paper for the International workshop on exploring the possibilities to straighten the cooperation between EU MS and Ukraine in field of New materials”** of Work Package 1 “International Knowledge exchange to support the integration of Ukraine into ERA” of **the RI-LINKS2UA project “Strengthening Research and Innovation Links towards Ukraine“**

Project Consortium:



RI-LINKS2UAisfundedbytheHorizon 2020 – Framework Programme for Research and Innovation under the grant agreement no. 692476.

Input Paper

PPP Initiative “Resource materials” EU-UA high-tech cooperation and potential for Smart Specialization for Ukraine

Internationalisation of the Ukrainian Platform on Advance Materials

Authors: Dr. Andrey Ragulya (National Academy of Sciences of Ukraine), Dr.Iryna Bilan (NASU), Dr.Yegor Dubynskyi (NASU), Dr. Marina Gorokhovatska (NASU)

Kiev, January 2017

Foreword

Ukrainian Technology Platform on Advanced Materials (UTPAM) had been launched in Ukraine within the FP7 funded project BILAT-UKR*AINA as one of the Pilot activities (2013-2015). Among its tasks the follows ones were stipulated:

- to provide the fruitful and effective cooperation between the representatives of industry and other important stakeholders in formulating the demands for new materials and technologies of their production for establishing of R&D priorities in advanced materials and technologies and revealing the new areas of applications for the known groups of materials;
- to attract the attention of government and public organizations and investors to new materials and new technologies by presentation the detailed information about advanced materials research investigations;
- to ensure the contacts with representatives of European Technology Platforms

During the time of its activity the permanent links has been established and realised under special Agreements between National Academy of Sciences of Ukraine and State Enterprise Antonov as well as between NASU and Yuzhnoye (Pivdenne) State Design Office deal with research in the field of advanced materials. Sustainable interaction with EUMAT also brings the essential input in activity of UTPAM.

At the same time the Ukrainian status as associated to the Horizon 2020 country entered in force since 2015 and new challenges defined both in EU and in Ukraine requires widening the existing frames of cooperation. Particularly the necessity of UTPAM internationalisation and its participation in forming the demands of stakeholders became possible as the key element of all ETPs. This approach allows us move from separate actions and steps to PPP initiatives.

Under support of Ministry of Economy and Trade and Ministry of Education and Science of Ukraine National academy of sciences of Ukraine proposes the Cross-cutting Programme Initiative "Advanced long lasting resource materials for transport, energy, medicine and environment protection – "RESOURCE MATERIALS"" considered a PPP initiative of the HORIZON 2020 programme of the European Union in the period 2018-2020.

Background Information

Global Challenges to be responded through the Programme

European Council adopted the European Strategy 2020 - strategy for smart, sustainable and inclusive growth. 70th UN General Assembly approved the concept of sustainable human development until 2030. The Goal 9 has been formulated as follows: "Build resilient infrastructure, promote sustainable industrialization and foster innovation". *90 trillion may be invested into infrastructure worldwide for 15 years* that is $ 6.7 trillion annually in accordance to the report "Driving Sustainable Development Through Better Infrastructure: Key Elements of a Transformation Programme" (Global Economy & Development, Working paper 91, July 2015 under Edition of Lord Stern). The activity largely linked people with the sphere of material production, in particular, the production and processing of natural resources and manufacturing of materials, constructions for sustainably operating infrastructure in the transport, energy, industrial production and environmental protection. This activity will help to meet the global challenges, which are:

- Population is growing in the World and the increase in demand and consumption, mining and processing of material resources is likely to double over the next 40 years. Human impacts on the environment in terms of production /consumption irreversibly worsen in case of further exploitation of obsolete production technologies, industry, services and infrastructure [1-3]. Thus, people need more effectively using materials and energy, longer operating infrastructure and other facilities easily recyclable.
- Mineral resources are limited, thus ... Mankind is looking for materials that meet the scientific and technical requirements of continuous operation for a long life, long duration determined by reducing their technical, and economic parameters to a critical level, and pollution below acceptable standards, and so on.
- European Safe Life Concept is in the deep contradiction with real aging infrastructure across Europe (including Ukraine). Recently in FP7 Safe Life X project «Extension management of aged infrastructure networks and industrial plants» it has been stated:
  "Safe use and the subsequent development of European transport, industrial and energy infrastructure faces considerable difficulties due to their age". The first conclusion concerns: "One of the biggest problems of safety is the degradation of materials. A good knowledge of the degradation mechanism is crucial to be able to warn and evaluate properly the resilience of the system"[4]. Nevertheless, there is no EU R&D programme focused exactly on this problem. To our best knowledge, it must be overcome using modern materials specifically oriented on the long-term operation.

To meet these challenges, the principally new approach to materials development and production is expected to be applied. It has to be grounded on one of the most integrated characteristics of these materials – a resource of their service under given conditions of exploitation. **We define the RESOURCE MATERIALS as materials of new generation, which meet the scientifically and technically sound requirements of pre-assigned resource objects of continuous operation. These materials are considered recyclable to return them in exploitation after giving them new functions.** The resource-providing materials are going to embrace huge segment of market in the next 15-20 years because: i) extension of the service life for existing infrastructure and ii) development of new infrastructure solutions using as-invented materials, mostly composites. Thus, the society should

formulate requirements for systematically increasing technical level of resource materials (for all branches of industry) to maintain high level of competition and safe life, reduce energy consumption and materials, significantly reduce pressure on the environment, which is a global strategy of sustainable development.

[1] R. Tomellini Added Value Materials. Cambridge, 2010.
[2] Material efficiency: A white paper by J.M. Allwood, M.F. Ashby, T.G. Gutowski, E. Worrell Department of Engineering, University of Cambridge, Trumpington Street, Cambridge CB2 1PZ, United Kingdom // Resources, Conservation and Recycling 55 (2011) 362–381,
[3] J.M.Allwood, M.F.Ashby Sustainable Materials, 2012 UIT Cambridge Ltd.
[4] Survey «Extension management of aged infrastructure networks and industrial plants» FP7 Grant Agreement 608813, http://www.safelife-x.eu-vri.eu

Challenges specific for Ukraine

- Ukrainian scientists are very skilled in the development of the resource materials but the Country does not use this potential properly.
  Space and Atomic projects of the past century were stimulating the development of exclusive materials, which determined the 70-years progress of Materials Science and the World economy.
  The segment of market for resource materials and strategy of its development has not been formed yet in the World – thus, Ukraine has a chance to start formation it first by means of initiation and implementationof the Cross-cutting Programme Initiative "Advanced long lasting resource materials for transport, energy, medicine and environment protection - «RESOURCE MATERIALS" overcoming several barriers:

- ✓ There are scientists, but scattered…;
- ✓ There are plants and enterprises, but each remains de-focused…;
- ✓ There are IPRs and technologies, but scattered and non-systematic…;
- ✓ There is powerful transit potential, but not used properly…;
- ✓ There is an economically justified need for construction of new infrastructure in the segments of transport, energy, industry of Ukraine as a part of the European infrastructure, but … lacks the support of Government;
- ✓ Transformation requires concentration of resources: power–scientists–industry (Customers–Developers– Manufacturers – End-users) to solve a complex problem - creating the segment of market named "Materials for infrastructure" (resource materials) to meet requirements of the Global market and Global Challenges to receive Smart specialization in the EU market!
- ✓ Transformation of new infrastructure, including transit one, to customer of RESOURCE MATERIALS.

In a number of EU countries and in Ukraine, the structure of the basic sectors of the economy strongly differs by quality (the use of resource materials) both duration and safety of operation. Transition of these industries to a new level of quality and diversification will require substantial investment over several decades. All the above is a prerequisite to establish public-private partnerships and entrepreneur discovery mechanisms, which can be realized within the "Resource Materials" Interdisciplinary Program Initiative.

The PPP “Resource Materials” should be intended to shape, develop and complete new and huge Segment of Market at the level of € 2-3 Trillion for next 10 to 15 years.

Important Market Aspects for PPP “Resource Materials”

Investments in infrastructure – transport, irrigation, energy and information and communication technology – are crucial to achieving sustainable development and empowering communities in many countries. It has long been recognized that growth in productivity and incomes, and improvements in health and education outcomes require investment in infrastructure. Inclusive and sustainable industrial development is the primary source of income generation, allows for rapid and sustained increases in living standards for all people, and provides the technological solutions to environmentally sound re-industrialization. Without technology and innovation, industrialization will not happen, and without industrialization, development will not happen.

- ✓ Obviously, power plants, bridges, railways, supporting structures, and other costly transport, energy, infrastructure facilities, parts of the human musculoskeletal system, robots in fully automated manufacturing, environmental facilities - they should have the resource of reliable operation over 50 years. In this formulation of the problem, there is nothing "subversive": today the aggregates of hydropower plants started in the second half of the 20th century, working more than 50 years, nuclear reactors over 40 years, bridges - more than half a century, etc.
- ✓ It is becoming increasingly evident that the industrial, energy and transport infrastructures in Europe are transnational and increasingly dependent on all EU MS and neighbour countries. The efficiency of industrial production and competitiveness of goods is closely related to the timely delivery of materials and products, and can be implemented only in case of adequate logistics and high-speed transport infrastructure. This must be well developed, by the general standards in all mentioned countries. The role of safe and rapid transit is increasing and serving to increase competitiveness of entire EU economy. For EU and Ukraine it is strategically important to secure one of the key places in the transit corridor "New Silk Road", the Trans-European Transport Network (TEN-T) and other transit projects.
- ✓ EU stimulated research activities (see project SafeLife-X) showed that Europe has problems with aging infrastructure and these problems are increasing dramatically. Years of experience have allowed observations to identify problems of long-term operation, such as corrosion, fatigue, overgrowing, swelling, embrittlement, and many others. At the same time, new materials suitable for a longer work have been developed.
- ✓ The transportation infrastructures such as roads, railways, tunnels and bridges – life artery of Europe – needs in products and commodities. There is a significant contribution to the development of new European standards EN particularly in the Risk-Based Inspection Framework (pwi00319020 CEN TC 319, maintenance) [4].

However, the resource of any infrastructure, constructions, and vehicles is grounded on the stability and reliability of the materials which they are made from. The European analysis does not forecast those specific materials and technologies giving new quality to create long-lasting infrastructure, does not predict of how to change the infrastructure and material consumption in the 21st century. Here the named Programme “Resource Materials” is going to give mankind these answers and therefore, is worth implementing.

- **Specific Markets of Resource Materials**

- ❖ Development of transit infrastructure using in part Ukrainian raw materials: nanoparticle reinforced alloys, steels and weldable cast-irons, cements for a new quality, self-healing high speed rails, carriages, concrete constructions, pipelines etc.
- ❖ Development of self-healing concretes for transit high-ways, sea gas-oil platforms and port terminals, novel systems for protection of environment and recycling/ utilization of secondary raw-materials and wastes;
- ❖ Development of infrastructure monitoring network using built-in nano-sensors and Big data processing system to control “health and aging” of infrastructure.
- ❖ Development of composite materials based on metal, ceramic and polymer matrices for transit corridors in the frame of NEW Silk Road (East-West) and the TEN-T;
- ❖ Development of Energy Infrastructure as a part of transit infrastructure including big and local power plants, hybrid accumulating / feeding systems (commutation materials, electric energy transforming / accumulating, lighting systems), etc.
- ❖ Development of resource materials for the systems of heat and water supply inside the transit infrastructure;
- ❖ Materials for industrial infrastructure;
- ❖ Development of new materials for nuclear power plants, including materials for the fast-neutron reactors, DSS; sensors for radiation monitoring.

- **Existing pre-requisites**

The National Academy of Sciences of Ukraine, where the materials science is a strongest part, is developing the Research programme titled “Extension of life of infrastructure and transport services” for over a dozen. The selection of materials and material' technologies is concentrated on the problem of aging. Particular emphasis is placed on new materials, which are intended for the construction of modern infrastructure, where the function is continuous stable operation already pledged or projected. The Program Horizon 2020, in some contests requires the creation of durable materials and designs of them. For example, new competition NMBP-06-2017 «Improved material durability in buildings and infrastructures, including offshore» is directly about reliable materials with extended service resource. However, the scale of one-two projects is too small; it should be a full scale PPP initiative involving funds from EC and companies in both Europe and Ukraine.

Thus, the materials theme is reflecting the vision of development of the material-intensive businesses as multibillion segments of the market and long-term perspective plan for building the EU and Ukraine's GDP. For Ukraine and EU it is strategically important to secure one of the key places in the transit corridor "New Silk Road" and other transit projects. Obviously, the economic interest of the EU and China in a powerful and low-cost transport connection will be an incentive to invest in the development of EU-Ukraine's infrastructure, built from Ukrainian raw-materials by Ukrainian companies. In this context, Ukraine's contribution to the field of science and technology of new resource materials for infrastructure could be significant.
Thus, National academy of sciences of Ukraine comes with a proposal to major scientific and technological initiatives "Advanced Long-lasting resource materials for Transport, Energy, medicine and environmental protection - "RESOURCE MATERIALS."

The concept of “Resource materials” is applicable in various areas, in relation to energy, transport, economics, biology / medicine and ecology, electronics / computer science, human resources and is associated with the concepts of competition and sustainability, thus it is considered in Cross-Cutting format.

• The Objectives of PPP Cross-Cutting initiative "Resource Materials"

The overall objective of the programme is at creating the segment of new materials, critical products and components of products based on them, that have increased life service in infrastructure of

energy, transportation, medicine and environmental protection by the implementation of the results of systematic researches and pilot-scale production technologies developed as well as subsequent commercialization through the Public-Private Partnership mechanisms.
The operational objectives of the Project Initiative are:

- ❖ Synergy of interaction between scientific, educational and industry sectors, interested in solving the problem of infrastructure renovation in construction industry, transport and energy on a way of Public-Private Partnership;
- ❖ Organization of interaction between the Technological Platforms of the EU and Ukraine interested in resource materials as a large segment of market and the subsequent transformation of the infrastructures.
- ❖ The definition of the best practical steps for the implementation of technologies in the new infrastructure based on as-developed resource materials;
- ❖ Definition Strategic Research Agenda (SRA) and the implementation of the strategy (Roadmap);
- ❖ Initiation and development of pre-standards and standards that will be the basis for the effective resolution of the problem of creating new infrastructure.

• Anticipated results of the PPP Cross-Cutting Program Initiative "Resource Materials"

1. The Catalogue of the needs of the various interested parties, stakeholders to be involved in renovation of aging industry, energy and transport infrastructures by building new infrastructures;
2. The materials solutions for expensive infrastructures to replace the old ones in EU countries and Ukraine;
3. The collection of resource materials technologies covering the needs of the next step - the construction of new infrastructure;
4. Rapidly developing Society, High-tech jobs in all EU countries and Ukraine;
5. Reducing the migration tension due to the equalization of living standards;
6. Reducing technological risks in the developing countries of the EU and at the EU borders;
7. Industry Modernization;
8. Development of transport systems: vehicles and equipment (ships, aircraft, electric vehicles, high-speed trains, highways, etc.) competitive for megaprojects like "New Silk Road" andthe Trans-European Transport Network.
9. A new generation of Power supply systems: hybrid storage, electric transportation and energy conversion;
10. The new system of environmental protection and waste management;

Grounding on the expected results of the Program Initiative "Resource Materials", the EU and Ukraine will be able to develop series of projects for new infrastructures for transit corridors, transport, energy and environment protection facilities making future development sustainable.
Terms for implementation of the Programme could be 2018-2022 years. Further renovation steps would be considered for the period 2020-2035 years.

Interests and Stakeholders

The EU interests concern

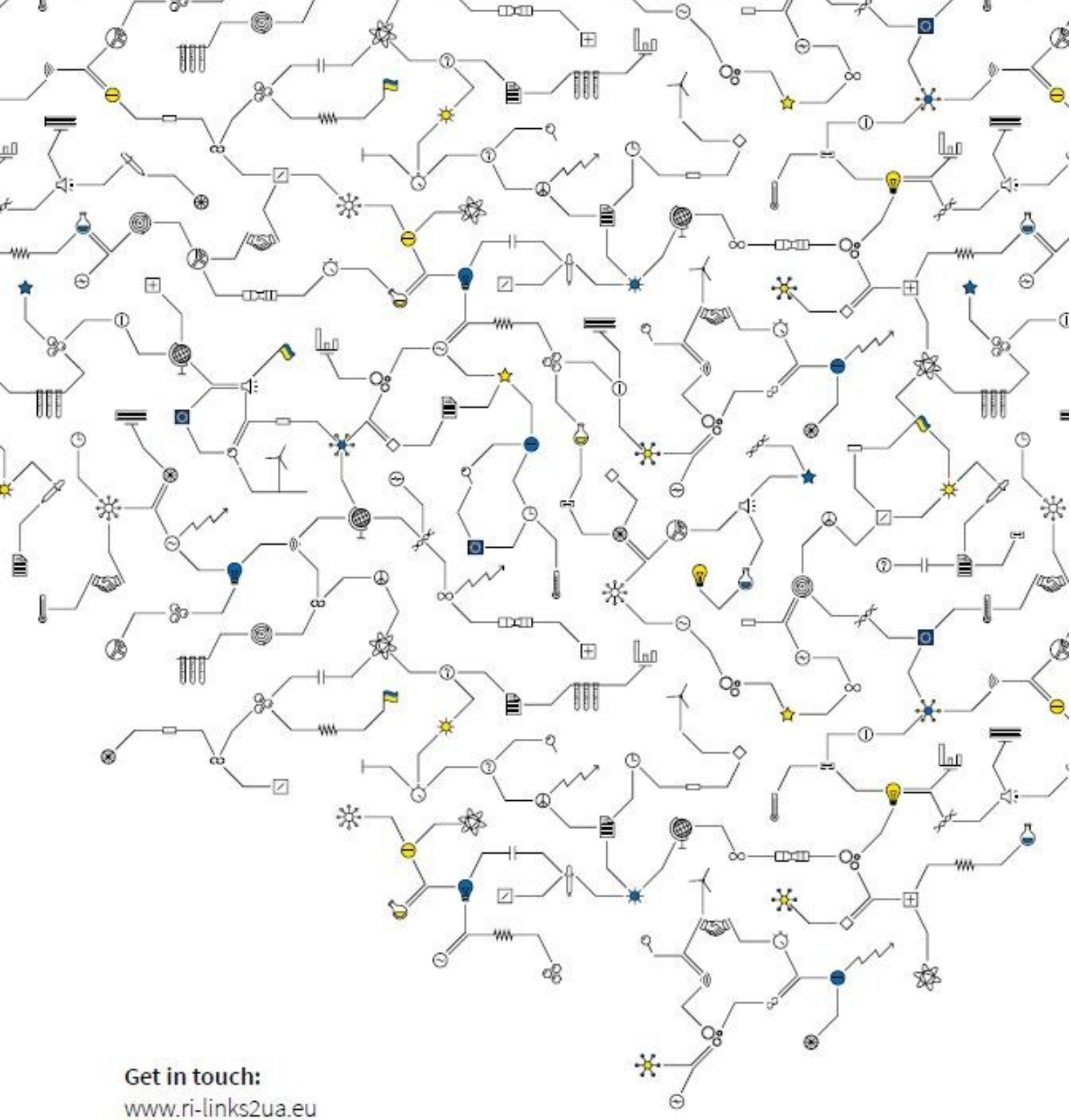
- New segments of materials, technologies and services;
- Developments of the EU transport corridors (the Trans-European Transport Network) as a minimum. As a maximum - New Silk Road with Asia;

- Safe Infrastructure development in EU;
- Low impact on Environment;
- Competitive materials IP and technologies, sales outside the EU;
- Technology and constructions of a new type and safety;
- Highly skilled jobs in the EU;
- New jobs in the EU, developing countries and in Ukraine;
- Reducing the social tensions caused by migration, potential migration from Ukraine;
- Reducing the probability of industrial accidents in the EU, developing countries and on the borders of the EU.

The Ukrainian interests concern:

- RIS3 and S3 in high-tech materials;
- Innovative and integrated Science and Education;
- New industry, transport and, energy infrastructure constructed from materials made in Ukraine;
- Reconstructed industry;
- Changed structure of the industry;
- The new infrastructure of cities, villages, industrial and transport hubs;
- Participation in the Trans-European Transport Network and the transit Megaproject "New Silk Road" between China and the EU;
- New transport infrastructure that meets the high-speed delivery standards of (electric vehicles, high-speed trains, highways, etc.);
- The Energy Strategy coordinated with the EU;
- New energy-generating capacity, energy-accumulating systems, energy-converting systems, improving energy consumption;
- The new system of environmental protection and recycling

Achieving these goals for the European economy and way of life is possible, provided that the whole industry to modernize itself, increasing the efficiency, quality and safety. Security is essential to human well-being and to ensure the efficiency and competitiveness of the industrial and transport systems as a whole. Any breach in the chain of production - transport has negative consequences for the industry and for the transport system, which goes beyond a single country. It is therefore important that in all European countries, there is a consistent approach to security, and that this approach is also supported consistently by different industries and vehicles and technology. This should be a long-term goal that mobilizes the efforts of all parties involved.



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Find us on:

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