PROJECT FINAL REPORT

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PP	Restricted to other programme participants (including the Commission)	
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CO	Confidential, only for members of the consortium (including the Commission)	

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1. Final publishable summary report

1.1. Executive summary

Developments during the last decade have resulted in essential redistribution of key roles in the filed of radiation detection technologies. Significant investments of the USA administration to the Global Homeland Security Programme started in 2005, the considerable costs of Japanese government aimed at the elimination of the consequences from the Fukushima disaster (2011 – present time) have allowed USA and Asia to come to the foreground in the field of RDT.

Europe is quickly losing its position in this type of activity. Despite great human resources, scientific and engineering potential, the most part of European research centres are essentially disintegrated and uncoordinated.

From this point of view S**UCCESS is a unique project aiming at consolidation of European research efforts in order to bring the radiation detection technology in Europe to the qualitatively new level by overcoming existing fragmentation, creation of a new physical model and approaches, developing tools and models able to match those of the USA and Asia.**

Ukraine is one of the Europe's neighbors, and the reinforcement of the cooperation with Ukraine in the context of the European Research Area (ERA) is an important part of the European Union international collaboration activities.

The 36-month SUCCESS project aiming at reinforcing the cooperation with Ukraine in Material sciences has been implemented by a EU-Ukrainian consortium composed of four partners - ISMA(UKR), UBCL (France), inno (France) and Kharkov Technologies (UKR) - who have been supported by Scientific Reference Team of 3 world class scientists from Italy, Russia and Estonia. SUCCESS support action gave to Ukrainian and European research centers specialized in scintillators and luminescent material science the possibility to bring their research activities and relations on a new qualitative level through twinning activities between the Institute for Scintillation Materials of Academy of Science of Ukraine (ISMA), and its long term partner Laboratoire de phisico-chimie des matérieux luminiscents, University Claude Bernard of Lyon (UCBL), France.

The project activities supported a coherent plan for integrating ISMA into European Research Area, namely via full mapping of the ISMA capacities, extending of the cooperation with European research centers, and mobilizing stronger commitment to ISMA-UCBL collaboration. The project objectives have been fully achieved via the following activities:

- **Preparatory and analytical activities,** to allow better understanding of ISMA forces and weaknesses as well as socio-economic demand for functional materials (particularly, scintillators and luminescent transformers of radiation used in science, industry, security and etc.), leading to ISMA Strategic Development Plan.
- **Twinning activities,** based on the twinning and joint research plan between ISMA and UCBL. A twinning agreement has been signed at the beginning of the project on July 20, 2011. The close collaboration positively impacted on a progress of joint research conducted in different locations (Ukraine, France, Germany, Italy, Poland), scientific knowledge and skills exchange, organization of 5 joint scientific workshops, and negotiation on setting up a Joint Virtual Laboratory ISMA-UCBL. ISMA and UCBL mutually participated in 15 large scale international events where they presented more than 100 reports on the results of their joint research, published in 25 articles. The interest of international community in these results enabled the consortium to prepare the background for extending of twinning collaboration. Special attention has been put on young researchers involvement and training.
- **International cooperation activities, such as networking & brokerage**, **ETP and FP7 consortia integration** implemented on wide European and regional level, involving other European organisations to extend the project impact. ISMA participation in more than 30 international

conferences, workshops and other sessions (hold in EU and in Ukraine) provided a supportive environment for promoting ISMA research capacities, partnership building and enlargement of cooperation between ISMA and European institutions in the field of ISMA interests. For integration in the EU consortiums ISMA has prepared 4 proposals and signed two memorandums of understanding on joint research with Polish and Armenian research centers. ISMA obtained a positive response to join the EuMaT – European Technology Platform for Advanced Engineering Materials and Technologies and it is expected that it will be a part of working group, namely in Nanomaterials, KMM materials and Materials for ICT.

- **Training and coaching activities** significantly helped to build competences and to strengthen ISMA skills to integrate European research programs. SUCCESS project assisted to the training of ISMA and other Ukrainian research centers on FP7 and upcoming Horizon 2020' mechanisms. More than 10 training sessions were delivered. Moreover ISMA and UCBL team organized a series of training session specifically dedicated to young specialists to become proficient in different scientific branches including scintillation physics, luminescent spectroscopy, material science and crystal growth.

In term of figures, SUCCESS supported 10 short term researchers exchanges, 27 joint experiments using unique EU facilities involving young researchers, 5 Scientific workshops, SUCCESS International Conference on Advanced Scintillation Materials (90 participants), 150 publications, 13 networking and brokerage events, 2 memorandums of understanding, 12 management staff visits, two presentations on local TV. However, the realization of all these figures, that are largely beyond the initial targets, wouldn't be possible without a strong commitment of partners to work together to promote the luminescence material sciences across Europe.

In sum, SUCCESS co-operation translated into concrete joint activities has demonstrated a high return on investment made by the European Commission not only in strengthening the bilateral scientific cooperation between the two leading scientific centers in Ukraine and in France, but also in **improving the efficiency of European research in the field of radioluminescence, the detection of ionizing radiation, new scintillation materials, sensors and devices.** Due to the effective twinning, Ukrainian and French research centers have confirmed and strengthened their respective competences aimed at innovative implementation of joint scientific projects in the field of space research, high-energy physics, medical diagnostics, ecology (ex. the control and prevention of unauthorized distribution of radionuclide).

The project has played a significant role in the **development of the ground for networking of the European research centers and shown a strategic interest for the European Union to create a single research area, which combines basic research, experimental development and production of luminescence materials and scintillators.** The goal of the SUCCESS partners is to improve European research in the field of radiation detection technology by overcoming existing fragmentation of the research centers, creation of a new physical model and approaches.

These structuring activities should begin NOW and via progress achieved through the SUCCESS CSA and other initiatives pushing forward the idea of creating a pan-EU community for EU competitiveness.

Results of SUCCESS project are significant not only from scientific point of view – **the most important outcome of SUCCESS lies in the consolidation and creation of the basis for future international scientific and technology collaboration between leading European research centres in Ukraine, Italy, Poland, Estonia.**

1.2. Summary description of project context and objectives

The overall objective of SUCCESS project is to stimulate win-win cooperation and strategic partnership between Europe and Ukraine in the NMP thematic priority (in particular in the material sciences thematic), and at integrating Ukraine into the European Research Area, by strengthening Ukrainian participation in the 7th Framework Programme, increasing Ukrainian visibility of the European research arena and improving international cooperation capacities.

The first project period has three main objectives: 1) Undertake preparatory and analytical activities, allowing to build on the results of the twinning and integration activities 2) Launch twinning activities 3) Launch implementation of awareness raising campaign and activities aiming at reinforcement of international cooperation capacities of ISMA.	Specific objectives for **the second period** were aimed at continuation of the project activities started during the first period: 1) To keep on implementing twining activities ISMA-UCBL 2) To reinforce international cooperation capacities of ISMA **3)** To prepare a background for extending of twinning collaboration (SUCCESS exit strategy)
1.1 Preparatory and analytical activity These activities are aimed on performing of ISMA preparation to the new steps in its strategic development through ensuring of successful project launch and implementation, selecting of scientific reference team in order to provide peer reviews of project achievements, providing of analytical picture of the strengths, weaknesses, opportunities and threats for ISMA and an analysis of the socio-economic demand in the Ukrainian and European area for the ISMA current R&D thematic, developing of ISMA Strategic Plan including the international cooperation dimension.	**2.1 Twinning activity** The first sub-objective is to provide timely adjustments of Twinning Plan and a Joint Research Plan to ensure the effective twinning work between the two research organizations. The second sub-objective is to implement joint twinning activities. This activity includes conducting of joint experiments in different EU locations, short term researchers (especially young researchers) exchange, and organization of scientific workshops, practical exchange, data and knowledge sharing between researchers. The third sub-objective is to monitor the implementation of joint twinning activities between ISMA and LPCML/UCBL. Accurate feedback will be ensured by means of regular peer reviews.
1.2 Twinning activity The objective of this group of activities is to develop an ambitious twinning programme between ISMA and its long term European partner, UCBL (France) and launch its implementation. The first sub-objective is to prepare the basis of the	**2.2 Awareness raising and reinforcement of international cooperation capacities of ISMA** This group of activities is aimed on preparation of the basis for reinforcement of ISMA international cooperation capacities trough strengthening of

twinning work between the two research organizations, by elaborating an overall Twinning Plan and a Joint Research Plan, preparing a Memorandum of Understanding and a formal Twinning Agreement. The second sub objective is to implement and monitor joint twinning activities. This activity includes conducting of joint experiments in different EU locations, short term researchers (especially young researchers) exchange, organization of scientific workshops, practical exchange, data and knowledge sharing between researchers. Accurate feedback will be ensured by means of regular peer reviews. The third sub-objective is to investigate the feasibility, to prepare and launch joint virtual laboratory between ISMA and LPCML/UCBL.	ISMA FP7 skills, expanding of network, rising of awareness about ISMA capacities and benefits of collaboration with this Ukrainian research centre. The first sub-objective is to disseminate the project results via a web-site and to support joint ISMA/UCBL participation in EU events. The second sub-objective is to prepare an informational basis for ISMA integration into European research area and network, namely further ISMA participation in the working groups of the ETP EuMAT.
1.3 Awareness raising and reinforcement of international cooperation capacities of ISMA This group of activities prepares the basis for reinforcement of international cooperation capacities of ISMA trough strengthening of ISMA FP7 skills and raising of awareness about ISMA and collaboration opportunities with Ukrainian research centre. They include dissemination actions, joint ISMA/UCBL participation in EU events, development of SUCCESS project web-site and preparation of informational basis for ISMA integration into European research area and network.	**2.3 SUCCESS exit strategy** *The objective* of this group of activities is to ensure sustainable cooperation between ISMA and UCBL beyond the SUCCESS project as the first step in the process of the rapprochement of the different scientific schools – in occurrence European and Ukrainian; to initiate and prepare the ground for this process of building in Europe a common area for coordinated research & innovation infrastructure that connects radiation detections science, technology and industry in order to create mutual beneficial, broader opportunities to commercialize research results and to provide access to new markets.

The project has achieved the most of its objectives.

1.3. Main results/foregrounds

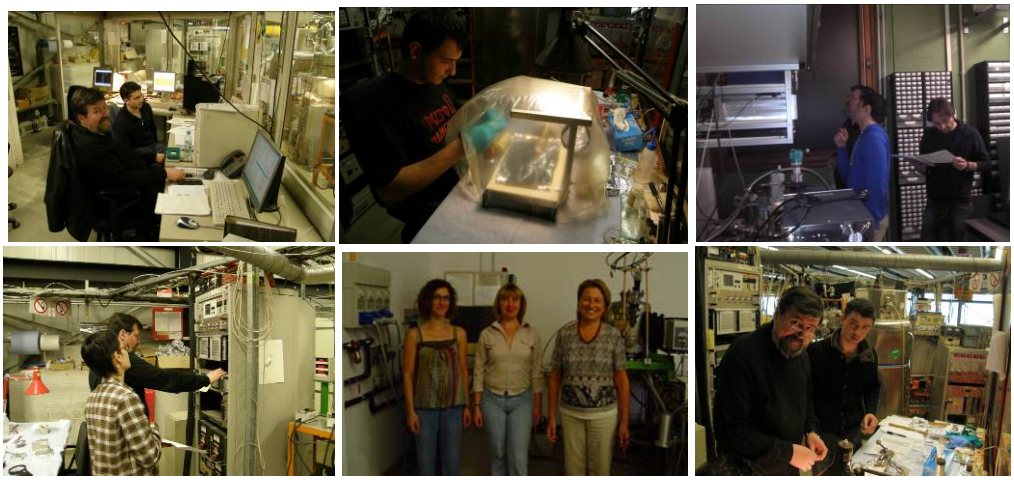
The table bellow highlights the progress towards key objectives of the SUCCESS project as defined in the *Annex 1. Description of Work (DoW).* The progress is monitored against verifiable indicators given in the DoW.

Key Results/ (expected in the Description of Work)	**Progress towards objectives**
Specific objective 1: to prepare ISMA to the new step in its strategic development	
Successful project launching	Kick off was organised in Lyon on December 2010. It allowed refining the methodology and validation of the first year work plan. Consortium has become operational on the strategic and management level (identified project management team, administrative and financial office). Cohesive team was created (good interaction with project coordinator, quick reaction of the partners) and significant progress of the coordinator was done in the management of the European project.
SWOT analysis completed	ISMA SWOT analysis had been completed in order to prepare the basis for the future project activities, and in particularly for the ISMA strategic development plan. It was expected that detecting the strengths, weaknesses, opportunities and threats for ISMA would allow a clear overview of the achievements that ISMA should do during the project and beyond. ISMA SWOT analysis was an assessment of data which were organized by the SWOT format into a logical order that helped understanding, discussion and decision-making on the subject related to the ISMA positioning as a potential leadership in the field of radiation detection materials. The results clearly demonstrated that ISMA have enough research and managerial capacities to forward the idea to become a key player for overcoming the fragmentation of the European research in the field of radiation detection materials based on scintillation and luminescent materials.
Scientific reference team created and operational	A high level Scientific Reference Team of experts in the NMP (namely, in material science) domain was set up, in order to have an external expert opinion on major project results. Effective collaboration with experts during the first project period contributed to enlarging the communication scope of the SUCCESS and greatly facilitated the validation of key reports of the project. The SUCCESS Scientific Reference Team includes 3 experts, chosen according to a transparent selection process.

Socio-economic analysis completed	The socio-economic analysis (SEA) has been completed in order to assess the potential of scintillation and luminescent materials research and development. The exercise cleared up the state-of-the-art of the research & development in the field of scintillation and luminescent devises, provided an overview of the market landscape, identified technological challenges and trends. Highlighting the importance of the scintillation and luminescent materials research and development for the economy and society, it assessed their major impacts on health, and environment, economy and society (growth, employment, life conditions). The findings and conclusions of the exercise were helpful to the project teams in formulating main priorities for ISMA R&D themes. 
ISMA Strategic plan developed	Strategic Plan has been developed on the basis of above mentioned analysis of the strengths and weaknesses of ISMA (SWOT-analysis) and socio-economic analysis of the current level of science and technology development, as well as on ISMA competitive benchmarking to others word-class research centers. The plan develops a general concept of the Institute, states mission, vision and goals that will direct ISMA to upscale and deeper involving into the ERA. The strategy addresses as well ISMA promotion at international level in order to create more hard links with EU organizations working in the field of radiation detection and scintillation material sciences. The Strategic Plan of ISMA has been reviewed by the Scientific Reference Team.
Specific objective 2: to develop an ambitious twinning programme between ISMA and its long term European partner, UCBL (France) and launch its implementation	
Development of the twinning work basis	Twinning Plan and a Joint Research Plan have been elaborated and regularly adjusted during strategic meetings of partners. Memorandum of Understanding and a formal Twinning Agreement have been developed and signed.
Implementation of joint twinning activities	The core of the Project is implementation of Twinning Activities in order to set up a basis for future expansion of ISMA partnerships in Europe and to provide support for conducting of joint experiments. Twining activities between ISMA and LPCML/UCBL were implemented according to the Twining plan issues. Twining and Joint research plans were being constantly updated during regular strategic meetings, informal communications and by online ISMA/UCBL contacts during the whole project life. **7 strategic partners meetings** and regular communications between scientists of ISMA and LPCML/UCBL were organized during project life for successful project advancement. Joint experiments were carried out according the following scientific topics

approved by the members of Scientific Reference Team:

1. Mixed crystals luminescence study.
2. Low temperature luminescence study and cryogenic scintillators search.
3. Energy transfer to the nanoparticles uploaded into plastic scintillators.
4. Comparative crystal growth with different technique use.



The relevant staff of both ISMA and UCBL has started with mutual work on SUCCESS topics from the early beginning of the project and has organized **37 researchers' visits** for short term exchange and joint experiments conducting in different EU locations (France, Germany, Italy, Poland). ISMA researchers have got the access to scientific equipment of UCBL (Lyon, France) and unique EU facilities in the field of material science at HASYLAB, DESY (Hamburg, Germany), ELETRA (Trieste, France), Department of Materials Science, University of Milano-Bicocca (Milan, Italy), National Center for Nuclear Research (Otwock-Swierk, Poland).

Special attention has been put on young researchers involvement and training. Preferably SUCCESS project supported **short term exchange of young researchers (10)** to UCBL, including **2 grants for the 10-month exchange** in the frame of joint ISMA-UCBL supervision of PhD thesis.

Main results of joint research were presented at SUCCESS scientific workshops, international conferences, in scientific publications as well as are available on the project website http://success.kharkov.ua.

	55 ISMA researchers took part in 15 international events. 39 visits on international conferences were supported by SUCCESS project and 2 large scale international events were held in Ukraine by ISMA. 5 International SUCCESS scientific workshops on NMP thematic were organized for the purpose of information, knowledge, data sharing, training of young researchers and presentation of main achievements:  1st SUCCESS International Scientific Workshop "Scintillation and Luminescence Materials" was held on 17–22 July 2011, Gdansk, Poland. 2nd SUCCESS International Scientific Workshop "Scintillation Materials for Nuclear Medicine" was held on 19 - 22 September 2011, Kharkov, Ukraine.  3d SUCCESS International Scientific Workshop "Luminescence and Luminescent materials" 4th SUCCESS International Scientific Workshop "Future SUCCESS" 5th SUCCESS International Scientific Workshop "Scintillation Processes and Materials for Radiation Detection". The most of SUCCESS Workshops were held in conjunction with large scale international conferences in order to bring together experts in the field of project interest (particularly, scintillation physics and luminescent transformers of ionizing radiation, novel nanomaterials and technologies) to provide the wide audience for dissemination of project results and a supportive environment for networking.
Preparing of a ground for lunching	After final discussions of the joint virtual laboratory feasibility and selection of the relevant virtual lab model for ISMA/UCBL partners have validated decision to

of a Joint Virtual Laboratory between ISMA and LPCML/UCBL	organize Joint ISMA and UCBL Virtual Laboratory during the 2nd consortium meeting (Lyon, March 29, 2012). Report about the feasibility study has been developed. The work entered the next stage: elaboration of Agreement on Joint Virtual Lab creation. However, administrative restructuring of one of the partners (LPCML) has caused some delay in making administrative and strategic decisions. This change stipulates that Joint Virtual Lab will be launched after the project end as soon as restructuring is completed. The creation of a joint virtual ISMA/UCBL laboratory was one of the key project outcomes. Even if the laboratory is just in the beginning of its existence, the consortium promoted it at the project final event in September 2013. We are convinced that this chair system will bring high-grade research results and will further impact on the ISMA visibility in Europe.
Scientific reference team – SUCCESS ambassador and consultancy body	A high level Scientific Reference Team of experts in the NMP (namely, in material science) domain was set up in the project beginning, in order to have an external expert opinion on major project results. Effective collaboration with experts during the second project period contributed to enlarging of the communication scope of the SUCCESS team and greatly facilitated the validation of key reports of the 2nd period. It should be noted that bilateral communications with experts during joint participation in international events, ALL PROJECT EVENTS and joint experiments have the considerable influence on SUCCESS project implementation especially on ISMA network enhancement, strengthening of international collaboration, simplification of access to EU facilities.  Project partners are deeply grateful to the **project experts team:** **Dr. Anna VEDDA,** Department of Materials Science, University of Milano-Bicocca **Dr. Andrey VASIL'EV**, Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University **Dr. Aleksandr LUSHCHIK**, Institute of Physics University of Tartu, Estonia for active participation in project life and accurate feedback on project challenges.
Monitoring of joint twinning activities	The Members of Scientific Reference Team performed peer reviews of four project documents: Twining Plan, Strategic Development Plan of ISMA, Feasibility study of Joint Virtual Laboratory and "Twinning and international activities implementation". All planned reviews were evaluated with positive comments of experts' team.

Specific objective 3: to reinforce international cooperation capacities of ISMA	
Awareness raising campaign designed and successfully launched	Visibility, ERA integration and dissemination plan (VEDP) has been elaborated on the basis of the results of the SWOT and socio-economic analysis. An important input for the VEDP was the strategic development plan of ISMA that has been validated during the 2nd consortium meeting (Lyon, March 29, 2012). Key channels for informational campaign were indentified. The SUCCESS public web-site http://success.kharkov.ua developed in March 2011 is the important integrating instrument for twinning activity implementation and dissemination of project results. It contains complete information related to the project events, results, achievements, studies and gives free of charge access to the project materials for all target groups. With respect to the results of feasibility study on the creation of the Joint Virtual Lab, the web-site will be reorganized and will include platform for Joint Virtual Lab. This decision was taken at the project strategic meeting (Lyon, March 29, 2012).
Extensive activities to raise awareness about ISMA collaboration opportunities namely via the participation in a number of relevant events	Dissemination activities have been implemented in line with *Visibility, ERA integration and dissemination plan (designed at the project beginning).* During reported period, SUCCESS consortium focused its awareness activities on opportunities of the EU-Ukrainian partnership in the field of radiation detection materials and contribution for promoting the idea for the pan-European Association. Project team participated in 40 relevant events. I**n Ukraine,** were ISMA is well-known within scientific community, the activities have been directed at promotion of upcoming Horizon 2020 and SUCCESS project's achievements.    We have highlighted the importance of co-operation strategies / approaches in a cross-sectors perspective and have promoted the idea that connecting knowledge environments between EU and Ukraine is benefit for all the parties involved. **At international level,** during joint participation in 15 international scientific conferences (the full list of events is in the paragraph 2.12 of the present report) ISMA and UCBL staff presented results of joint research and promoted ISMA capacities. More than 150 scientific publications were prepared including 125 abstracts of reports and 25 scientific articles in referred journals (list of publications is annexed to D4.4 Summary of workshops organized by SUCCESS on NMP-research thematic). 3 SUCCESS presentations in mass media were performed.

	For integration in the EU consortium ISMA has prepared 4 proposals: - a proposal referred to the call FP7-Security-2012 – Activity: 10.2 Security of infrastructures and utilities. (mutual with UCBL , France, University of Milano-Biccocca, Italy, National Centre for Nuclear Research, Poland) ,November 2011). - international consortium with ISMA participation was built and proposal was submitted to FP7 call addressing objectives of FP7-INCO-2013-9, Coordination and Support Action. Proposal title*:* Reinforcing Cooperation with Belarus and Ukraine on Bridging the Gap Between Nanotechnology Research and Innovative Applications (R2I-NANO). - a proposal referred to the Joint bilateral competition of research projects 2012–2014, organized by the NASU and the Poland Academy of Science . The proposal was submitted jointly with the Poland National Centre for Nuclear Research in September 2011. - a proposal referred to Joint bilateral competition of research projects, organised by the National Academy of Science of Ukraine (NASU) and CNRS (France) (mutual with UCBL , France) (April 2012). The proposal was positively evaluated and DNIPRO project was launched in 2012.
Large scale international conference in Ukraine organised	Large scale international conference "Advanced Scintillation Materials" (ASM-2013), organized by Institute for Scintillation Materials in the frame of SUCCESS project was held on September 23-27, 2013 in Institute for Scintillation Materials, Kharkov, Ukraine. Conference web-site: www.asm-2013.org . The aim of ASM2013 was • to provide the exchange of knowledge between ISMA researches and other participants from Ukraine, EECA and Europe • to arrange the networking and brokerage sessions between the research teams • to detect further collaboration opportunities and establishment of partnerships on a wide European level The general topic of the conference was the theory and practice of new scintillation materials. Last years developments of series new scintillators, significant progress at the radioluminescence theory and process in simulation allowed to upscale the state-of-the-art for new efficient media search on the base on more advanced theoretical models and forecasts. 90 scientists from EU, USA, Australia, Israel, Ukraine, Russia, Belarus, China and Japan took part in ASM-2013 conference. Overall 67 scientific contributions were presented during the 5-days conference period, including 23 invited talks, 19 oral and 25 poster presentations. ISMA scientists presented results of the joint research obtained in the frame of the twinning activity between ISMA and UCBL during SUCCESS project implementation in 17 oral and poster contributions.

During the Iinternational conference “Advanced scintillation Materials” (ASM-2013) most of it’s objectives has been achieved:

- awareness about ISMA research and technological potential in the field of radiation detection among international community has raised
- SUCCESS project achievements were promoted
- dissemination and exchange of knowledge between participants were provided
- ISMA/UCBL twinning activity results were presented for wide audience of experts on NMP thematic
- networking and brokerage sessions were arranged for detection of future international collaboration opportunities
- training for young scientists was organized in order to develop their skills in research

Networking session organised	13 networking, brokerage sessions as well as a number of face-to-face meetings with ISMA researchers were organised during the international conferences. One of the key outcomes was a mutual agreement between ISMA and National Centre for Nuclear Research of Poland about joint proposal preparation that has been achieved during IWASOM2011 event.

	 Two Memoranda of Understanding about Joint Research were signed during international conference ASM 2013 with - Poland National Centre for Nuclear Research and - Institute for Physical Research NAS of Armenia.
Training events to strengthen FP7 skills of ISMA staff	There were two types of activities: 1. Training sessions dedicated to ISMA staff aiming at developing skills in management of the European project. The sessions were face-to-face (meetings in Lyon in December 2012, in Kharkov in September 2011 and October 2013) as well as virtual (Skype and go-to-meeting support). 2. Training sessions dedicated to the ISMA and Ukrainian researchers in order to improve their capacities to participate in EU projects and be ready for Horizon 2020. (meetings in Kharkov in June 2011, September 2011, May and December 2012, June and October 2013). In total, 10+ training courses were delivered in line with these two axes.




Specific objective 4: To prepare a background for extending of twinning collaboration (SUCCESS exit strategy)	
Integration of young specialists in the research	Integrating young specialists in research was one of the SUCCESS strategic goals because the point is of high importance for the further twinning collaboration. ISMA delegated to EU research centres preferably young specialists in order to upgrade their skills, support professional development and increase their involvement as well as interest to scientific research. A number of **special training sessions for young scientists** has been organised during project life. ISMA organized the International Young Scientists Conference LUMCOS2011. The conference gave to young specialists a chance to present their recent results on pertinent conference topics. A lot of young scientists from ISMA and other Ukrainian scientific centres took part in ASM2013, where the leading scientists gave the training lectures in the field of scintillation physics and luminescent materials research. Young specialists participated in Summer School on Crystal Growth for development of their skills in material science and technology. In April 2013 a **special training session for young scientists** has been organised by SUCCESS team at the SCINT conference (Shanghai, China). The lead of the training event was Dr. Christophe Dujardin (*Directeur de l'Ecole Doctorale de Physique et d'Astrophysique de Lyon, ED52*) in his quality of a member of the SUCCESS project and as the Chairman of the International Conference on Inorganic Scintillators and their Applications (SCINT). Jointly with Dr. A.Gektin, SUCCESS program coordinator and member of the conference advisory committee, UCBL stimulated the organization of this session in order to take full benefit from the SCINT 2013 conference - bi-annual international event which gathers the whole community of scintillation research actors. A significant number of students generally attended the conference as well. In 2013,

	about 200 worldwide attendees came in Shanghai. Before and apart of the official scientific program, a full afternoon of presentations in the lecture and training spirit occurred. Because a community needs to train its Early Stage Researcher (ERS) in order to build up a long term view, doing it when the world-class scientists in the field and most of these ESRs were on the same site was a unique opportunity. **About 80 ESRs attended this session which was a real success.** SUCCESS team played a key role in this important event for the community.
Integration of ISMA in ETPS	In line with a Strategic development Plan of ISMA, the partners have investigated on a real interest and benefits of the ISMA's integration in ETP. Initial target (3+ ETP) has been revised on the basis of the progress of the project findings. **A consortium conference-call meeting dedicated to discussion on the ETP integration** issue took place in May 2012. The decision was to focus on this single ETP and to investigate deeper the opportunity for ISMA to join **the EuMaT** – European Technology Platform for Advanced Engineering Materials and Technologies. The SUCCESS team expresses its gratitude to Anna Vedda, SUCCESS expert who has assisted ISMA in negotiation process with EuMAT and has introduced ISMA to EuMAT chairman, Dr. Falzetti (Centro Sviluppo Materiali of Rome). EuMaT steering committee that took place in March 2013 in Brussels gave a positive response to the ISMA membership and expressed a generally positive attitude towards participation of ISMA, namely its director, A. Gektin in EuMAT working groups[1] . It has been suggested to associate ISMA in the activities of the following working groups: • WG3 - Nanomaterials • WG4 – KMM materials • WG6 – Materials for ICT. It was agreed to take an opportunity to organise a face-to-face meeting between ISMA and EuMAT representatives in Brussels or during NMP-event in Europe. The relation with EuMAT has been ongoing as far as it reflects a real interest of ISMA to be involved in the process of establishing of R&D priorities in the area of advanced engineering materials and technologies.
Sustainability plan and exit strategy developed	During the 4th SUCCESS Consortium Meeting organised within the framework of an International Scientific Workshop ''Future SUCCES'', which was held in Lyon on December 11-12, 2012, the partners and "associated members" were discussing the possible scenario of the project's further development, approaches of the project exit strategy and as the result took important decisions regarding the sustainability plan. **All existing consortium partners expressed their interest to continue to work together and develop SUCCESS into a single wide project design which will include new members.** SUCCESS Exit strategy is linked to development of the fundamental research where the cooperation between ISMA and UCBL is of a great importance because it impulses application and innovations at a next stage: implementation into industry. The purpose and objective of the exit strategy are also linked to EU Framework Programme successor Horizon 2020 and to other research topics in cross-cutting

[1] however not in the Steering Committee, composed only on EU countries

	fields, development and demonstration initiatives both on national and European levels. On the basis of these discussions and agreements the partners developed a sustainability plan and SUCCES exit strategy.

SUCCESS Targets (during the whole project duration)			
Activity / Event	**Indicator**	**Target**	**November 2010 - October 2013**
Scientific Reference Team	Scientific High Level Experts with most relevant profiles Number of peer reviews Workshops with reviewers Project strategic meetings with reviewers Joint participation in international events with reviewers	3 experts 4	3 4 6 6 9
Preparatory work and analysis	SWOT analysis of ISMA Socio-economic Analysis Phone and face-to-face interviews	1 1 20+	1 1 30+
Twinning activities implementation	Twinning Plan Scientific workshops Short term researchers exchanged Management staff visits Joint research plan Joint experiments (series with 1-2 weeks visits) Number of involved specialists (including young researchers) Feasibility study for joint virtual laboratory and, if positive, a set up of a joint laboratory	1 5+ 8+ 3+ 1 5+ 15+ 1	1 5 4 persons (10 visits) 12 1 27 (including 12 visits of young researchers) 22 (including 6 young researchers) 1
Publications	Newsletters Other publications	4 6+	1 newsletter and up-to-date information about project events on project website 150 (25 papers, 125 reports)
Integration in European technology platforms, FP7 consortia and international teams/networks	Number of ETPs joined by ISMA (matching ISMA profiles) Number of FP7 consortia (or other international research consortia) joined by ISMA	3+ 5+	Negotiations with EuMAT 1 joint proposal prepared and 1 proposal sent 2 memoranda of understanding signed, 1 joint project launched
Organisations of relevant networking and information	Number of Information presentations	15+	44

presentations and sessions	Networking sessions		13
Organisation of large-scale conference on NMP-thematic in Ukraine	Number of participants	60+	131 (2nd SUCCESS International Scientific Workshop) 90 (SUCCESS International Conference on Advanced Scintillation Materials)
Joint participation in the international events in EU			15 international events
ISMA participation in the international events in EU	Number of Ukrainian participants supported	12+	55 (including 39 supported by SUCCESS and 2 events were held in Ukraine by ISMA)

The project SUCCESS achieved the most of its objectives.

1.4. Expected impact

SUCCESS project lasted 36 months. This is an important time period. What is the potential impact of the SUCCESS project with the respect to economy (economic impact) and to people live (social impact) ? How can be characterised SUCCESS societal implications so far ? How SUCCESS results can be exploited?

1.4.1. Socio-economic impacts

Global challenges related to environmental issues and terrorist threats, require research of new technologies which are of high importance both for Europe and for the entire world. Knowledge and innovation in the field of radiation detection materials play a vital role in addressing these pressing issues that have been focused during the implementation of the SUCCESS support action.

The European Commission recently highlighted the relevance of materials science and engineering for the European well-being and industrial competitiveness. Important initiatives have been launched by the Commission: *Key Enabling Technologies, Europe 2020, The Innovation Union* and the initiative on the creative industries. A *Materials Summit* was held in 2010, highlighting the key importance of materials for industrial innovation and socio-economic progress.

Extracted from the NMP Work Programme 2011-2012

Within an integrated approach, research will focus on materials science and engineering to contribute to resolving Europe's grand challenges, in line with the recent 'Lund Declaration', which states that 'Meeting the Grand Challenges also requires (…) taking a global lead in the development of enabling technologies such as (…) materials'. This implies a rigorous exercise of prioritization. Appropriate advanced materials are of paramount importance for technological developments in virtually all Themes of the Seventh Framework Programme and in their respective fields of application. Attention is paid to activities launched by Member States, in order to achieve the most effective synergy possible; and international cooperation in appropriate areas is addressed.

The development of radiation detection materials is crucial for people health and security, new social and economy requests, environment issues. Scintillators and luminescent materials with higher knowledge content, new functionalities and improved performance represent a key step in increasing the value of devices and products based on scintillators. To face new technological challenges, a multidisciplinary approach is fostered, involving physics, chemistry, engineering sciences, and increasingly theoretical and computational modeling. The **"convergence of disciplines"** is considered by international scientific community in the field of scintillation physic and luminescence as a key tool for progressing in radiation detection material science and engineering. This approach is quite in line with emerging concept of "cross-sectorial internalization" of research.

Scintillation and luminescence research is important for environmental issues as it deals with row materials including those that are transformed or manufactured into value-added products with subsequent export but also possible collateral production of waste. This issue should be addressed by an integrated systemic and systematic approach in line with the EU environmental policies as well as the *Raw Materials Initiative*.

New societal challenges boost the research and industrial innovation. The integration of scintillation and luminescence materials and technologies, particularly for multi-sector applications, process development, scaling-up and industrialization of high added value materials will bring new solutions to address the global challenges.

These challenges drive the research communities at a global level and are of particular interest to **young scientists** willing to bring their contributions to the key research topics. International research community involves more and more scientists devoting the effort to the research in scintillation physics, luminescence and growth of scintillation crystals and films for health and security applications which have become a focus in recent years. New excellent scintillators are ceaselessly proposed. The referenced field lying on the cross-road of the different research sectors attracts young specialists urged on the numerous research challenges and problems that have not been yet solved. As stated above, integrating young specialists in research was one of the SUCCESS strategic goals because the point is of high importance for the further twinning collaboration.

The young scientists use to demonstrate ability for being innovative in their approach and bring a new breath into traditional materials characterization, design methods and simulation techniques. This is important to better understand and control scintillation and luminescence materials phenomena, in particular the structure–property relationships at different scales, to improve materials assessment, reliability and durability, and enable industrial applications of materials by design. The "young's" dynamic in developing new concepts, systems and processes has an important impact for new jobs creation and set up of start-ups.

1.4.2. Impact on health

Health is an invaluable part of a human being's life and the role of research in achieving and maintaining human health is increasingly recognized. **Nuclear medicine** is one of the fastest growing and most promising segments of the health fields. It comprises diagnostic and therapeutic procedures through the use of safe, painless, and cost-effective techniques. Based on imaging, the technology provides functional as well as anatomical information, and is found highly beneficial in diagnosis of organ function abnormalities, cancerous growths, cardiac diseases, neurological disorders, blood flow blockages, and dysfunction of any major organ.

Over the last few years, there has been a heightened level of R&D activity aimed at use of nuclear medicine in **diagnosis and treatment of serious and incurable diseases.** Some of these areas coveting medical attention include cancer, Parkinson's disease, central nervous system (CNS) disorders, autoimmune disease, Attention Deficit Hyperactivity Disorder (ADHD), among others.

Figure 1: SPECT scan

Detectors based on the scintillator lie at the head of the nuclear medical imaging. Gamma cameras, PET and SPECT scanners are the most widely used imaging equipment in nuclear medicine, whereby the market is experiencing a shift to hybrid PET/SPECT-CT imaging from PET/SPECT-only imaging. This transition is driven by use of the technology in an expanded variety of clinical applications. For example, a recent study[2] presented in June 2010 at the SNM's[3] 58th meeting revealed that hybrid PET/CT imaging can help save

[2] "The beneficial influence of dual isotope SPECT/CT use on management of patients with suspected diabetic foot infection"

[3] The Society of Nuclear Medicine (SNM), headquartered in Reston, Va.(US), is a nonprofit international scientific and professional organization that promotes the science, technology and practical application of nuclear medicine and molecular imaging

life and limbs for patients with diabetes-related foot infections. Diabetes can cause nerve damage and reduced blood flow to the bones and tissues of the feet, leaving diabetics vulnerable to infections. Combining two imaging agents with molecular imaging techniques provides diabetic patients an excellent infection screening method that **has already spared a great number of patients from aggressive amputation** of infected feet.

Even if the technologies are merging for a greater performance of the medical treatment, the position of radiation detectors based on scintillators and luminescence material in nuclear medicine equipment remains central.

On average, every European can expect to have a nuclear medicine procedure that uses a radioisotope for diagnostic or therapeutic purposes at some stage in his life. Just for example, **every year 30 million patients undergo isotope Tc-99m procedures around the world** (Hansell, 2008).

These facts forge a link between human health and development of the detectors based on the scintillators and luminescence materials.

Another point directly linked to the human health is **Food security.** Scintillators play in this area an extremely important role, namely, scintillators for various inspection systems for detection of dangerous radioisotopes in food. One concrete example can be given. Since the Great East Japan Earthquake that occurred on March 11, 2011, in response to the accident of Fukushima Daiichi nuclear power station, some countries are requesting inspection of radioactive substances on foods that are exported from Japan. Testing equipment for this purpose is based on the scintillators.

Finally, at a most global scale, radiation detectors based on the scintillators play their full role in **protection of people against the radiation**[4]. Although a dose of just 25 rems[5] causes some detectable changes in blood, doses to near 100 rems usually have no immediate harmful effects. Doses above 100 rems cause the first signs of radiation sickness (nausea, headache, loss of white blood cells). Doses of 300 rems or more cause temporary hair loss, but also more significant internal harm, including **genetic damage**, damage to nerve cells and the cells that line the digestive tract. Severe loss of white blood cells, which are the body's main defense against infection, makes radiation victims highly vulnerable to disease. Radiation also reduces production of blood platelets, which aid blood clotting, so victims of radiation sickness are also vulnerable to hemorrhaging. Half of all people exposed to 450 rems die, and doses of 800 rems or more are always fatal.

Figure 2: Chernobyl by Paul Fusco, American photographer

It is impossible not to mention the tragic Chernobyl case which radioactive release polluted the countryside much more than ten Hiroshimas would have done[6].

[4] Radiation protection, sometimes known as radiological protection, is the science of protecting people and the environment from the harmful effects of ionizing radiation, which includes both particle radiation and high energy electromagnetic radiation

[5] The unit used to measure radiation dosage is the rem, which stands for roentgen equivalent in man. It represents the amount of radiation needed to produce a particular amount of damage to living tissue.

[6] In fact, since the Hiroshima bomb was air-burst (no part of the fireball touched the ground), the Chernobyl release was equivalent to ten Hiroshimas

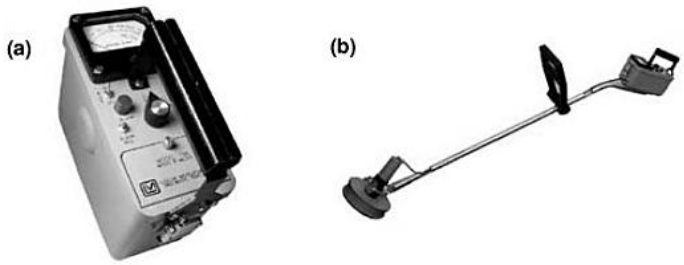


Figure 3: typical survey monitor scintillators with a NaI (TI) crystal (a) and plastic scintillation detector (b), *Courtesy of Ludlum Measurements, Inc.*

The ability of scintillation detectors (because of their short recovery time) to accurately determine very high counting rates and to detect the presence of even small amounts of radioactivity make them useful for a great number of monitoring areas. Their energy discrimination ability is also desirable in some applications. The widely requested scintillators devices (probes) are based on NaI(TI) crystal for measuring photons with different ranges of energies, Alpha particles are detected by a ZnS (Ag) crystal. Plastic scintillation materials are also in use for various specialized purposes and their use is growing as more materials are developed.

Scintillation counters control radiation at the nuclear plants and in a variety of situations where people need of automatic radioactive detection and measurement system, for the detection of radiosotopes. For example, scintillation counters are used for detection of potentially dangerous gamma-emitting materials during transport. These include scintillation counters designed for freight terminals, border security, and ports, weigh bridge applications, scrap metal yards and contamination monitoring of nuclear waste. There are variants of scintillation counters mounted on pick-up trucks and helicopters for rapid response in case of a security situation due to dirty bombs or radioactive waste. Hand-held units on the base of scintillators and luminescence materials are also commonly used.

1.4.3. Economic impact

Nuclear medicine segment

According to New Report by Global Industry Analysts, Inc., the global market for nuclear medicine is forecast to reach US$1.69 billion by the year 2015, driven by huge demand from the US and European market. In addition, developments in image-guided interventions and molecular imaging, as well as aging population will provide further impetus to market growth.

Advancements in imaging technologies that help diagnosis and treatment of diseases, as well as aging population is driving demand for nuclear medicine equipment. Proven efficacy of technology, reimbursement approvals and improved supply and distribution of radiopharmaceuticals, are expected to drive market growth. Greater use in applications such as cardiology and oncology would positively impact the market in the coming years. The PET scanner segment represents the largest segment in the global nuclear medicine market. However, the gamma cameras segment is projected to drive future growth, expanding at the fastest compounded annual rate for the period 2007-2015. Technological developments in PET/SPECT/CT scanner technology is also expected to generate greater revenues as they promise excellent market diffusion for cancer detection and therapy planning. Dedicated positron emission tomography equipment is expected to exhibit strong growth prospects compared to conventional imaging modalities. In addition, the growing number of new application areas such as neuroendocrine tumor imaging is expected to establish SPECT/CT as an important technological tool in the area of nuclear medicine in the near future.

The global market for nuclear medicine systems experienced steep decline in revenues in late 2008, as a result of the worldwide economic downturn. Decrease in demand from US, the most influential and mature nuclear medicine market worldwide, trailed by Europe and Japan was one of the major reasons for the revenue decline. The medical imaging systems and equipments in the country were not used to their fullest capacities and did not yield the required revenue gains. Apart from these,

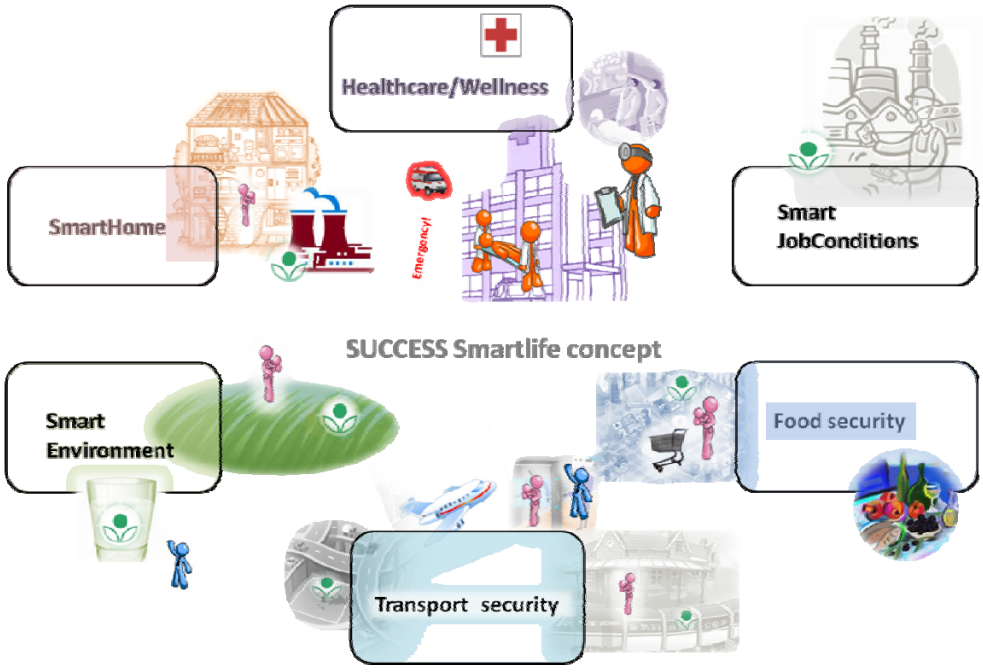
factors such as saturated western markets, low reimbursement rates and government-imposed restrictions in certain countries like China played a major role in sustained slowdown and decrease in market growth for 2008-2009. Nevertheless, the world market is expected to stabilize making way for replacement sales and growth in PET/CT procedure volumes. This would be mainly driven by PET/CT scanning benefits in oncology. Developments in technology and novel clinical applications meant for imaging modalities are expected to drive growth in the nuclear medicine market.

In terms of fastest growth potential, Asia-Pacific, powered by China, India and Korea is forecast to exhibit the highest CAGR (compound annual growth rate) through 2015.

SUCCESS economic impact relied to the WP 2010 technical scope[7] to the topics of the joint research plan. The project gave a good example of fruitful cooperation between West and East Europe R&D centers. It fully demonstrated ability to accelerate new scientific and technology projects reach a goal faster and more efficiently. It was a result of concentration of both teams efforts, more deep expertise and examples of "brain storms" of multilateral research team. Both centers significantly advanced on the invention of new scintillation and luminescence transformers, development of more advanced technologies for crystal growth.

1.4.4. Life conditions

Security and human health represents major political, social and economic challenges for all countries. Expectations for a better quality of life and safety call for improved, more efficient materials able to deal with new challenges of the modern times. A further advancement in the field of radiation detection materials does their important job to meet these expectations.



[7] Technical Scope (Work Programme 2010, Capacities Part 7, Activities of international cooperation, pg. 20) : The objective of this action is to reinforce the cooperation capacities of research centres located in the ENP countries, which are not associated to FP7.The call will give these countries the possibility to improve the research activities of their highest quality and/or promising centres in the thematic priorities of FP7.

Although the relation between SUCCESS technical focus and living condition is of a pervasive nature, main use-case areas that are driving and will drive the development of enabling technologies towards **a better life concept** are briefly described in the figure upper.

1.4.5. Pan-European informal network on scintillators and luminescent materials

As each country has something to contribute, the SUCCESS project experts agreed on the importance of the informal network to share expertise and to compare results obtained in different research centres. This importance is mainly highlighted by the global challenges that cannot be restricted to the European area. These challenges call for co-operation, openness and joint efforts in order to build capacity in material science, technology and innovation at both EU 27 and Pan-European levels. Via Joint Laboratory activities, ISMA will be able to support networking of institutes and laboratories that will contribute to the broad-based international research. Roundtable discussions among scientists from European and pan-European countries have been already started during different SUCCESS workshops, and in particular during the **5th SUCCESS International Scientific Workshop "Scintillation Processes and Materials for Radiation Detection"** held simultaneously with 12th International Conference on Inorganic Scintillators and Their Applications SCINT 2013 in April 2013 in Shanghai.

About 129 participants from Ukraine, Russia, Europe, but also from Asia and USA took part in it and discussed research infrastructure opportunities to build in the field of materials for radiation detection. Such a network could be essential in addressing vital socio-economic problems and global catastrophes liquidation. Last lesson has been given by Great East Japan Earthquake that occurred on March 11, 2011. Scintillators played an extremely important role there, namely, scintillators for various X-ray inspection systems and a number of international research centres including ISMA were involved in the development of the solution to address challenges linked to the human health and security.

Having accumulated vast experience over many years, the teams at the Pan-European network are devoted to exchange the most relevant and up to date research results for the use of not only by the "members" of the network, but all potential end users across the continent of Europe.

Whether it is from a scientific, technical or industrial news perspective, the goal is to make sure that both the researchers and industrials have the ability to communicate at the same level.

The informal networking also gives provides opportunity to discuss current and future research trends, policy change and problematic issues within science, technology, health, defense and wider governance. The contact established between ISMA and European Technology Platform EuMAT with a support of the SUCCESS project gives a concrete illustration of the networking added value. This contact will be developed in the future via ISMA participation in EuMAT working groups.

With respect to the Societal Challenges objective, the network will bring together resources and knowledge across different material fields, technologies and disciplines that cover activities from research to market with a new focus on innovation-related activities in organic and inorganic light emitting materials, nanomaterials, powder and thin-film phosphors and devices.

Horizon 2020 reflects the policy priorities of the Europe 2020 strategy and addresses major concerns shared by citizens in Europe and elsewhere. SUCCESS informal network's interest lies in the area of photo- and radio- luminescence, but the special emphasis put **on high energy radiation detection.**

Why is it so important for an average person or society?

As demonstrated via different SUCCESS reports, scintillators are necessary in many applications of human life and modern technology, ranging from science to efficient and precise radiography imaging methods in medicine, security and industry. Therefore, developments in the field of nuclear instruments and methods that were observed in the recent years have been largely related to demands of current technologies in application domains.

The SUCCESS consortium summarized key application domains of scintillators in a socio-economic analysis (D2.3 available on http://www.success.kharkov.ua/activity/?lan=eng) that clearly correlate the topic with HORISONS 2020 challenges:

* Health, demographic change and wellbeing;
* Food security, sustainable agriculture, marine and maritime research, and the bio-economy;
* Secure, clean and efficient energy;
* Smart, green and integrated transport;
* Inclusive, innovative and secure societies;
* Climate action, resource efficiency and raw materials.

1.4.6. Joint Virtual Laboratory

The twinning activity between ISMA and UCBL in the frame of SUCCESS project encouraged preparation of the scientific base for Virtual Lab and can be brought to another level where the ISMA-UCBL tandem will be at the heart of a virtual network/collaboration. The mission of this tandem will be developing an advanced supporting information and communication infrastructure and creating a comprehensive pool of scientific and technological expertise in order to promote the knowledge and ideas exchange between academic and industrial partners.

On the one hand, Virtual lab Implementation in tandem ISMA-UCBL with Scientific Reference Team support will further ISMA vision, mission and goals. On the other hand, the core activity of Virtual Lab corresponds to the SUCCESS Project main goal: strengthening and integrating research in the field of scintillation and luminescent materials in Europe as well as decreasing fragmentation in material science research area. Such goal is rather ambitious but due to the added value of international research collaboration within the Virtual Lab, the opportunities for progress are significant.

During the project period a feasibility study of Joint Virtual Lab creation was developed in order to “diagnose” and analyse the opportunities and possible ways for setting up the Joint Lab between ISMA and UCBL. The results of this activity are presented in D3.3 “Report on Joint Virtual Lab Feasibility study and planning”.

The analysis has shown that, in general ISMA and UCBL have great potential required for the development of sustainable partnership in the framework of a joint laboratory. The key issues for successful collaboration between ISMA and UCBL within the Joint Virtual Lab are schematically presented in

Fig. 4.

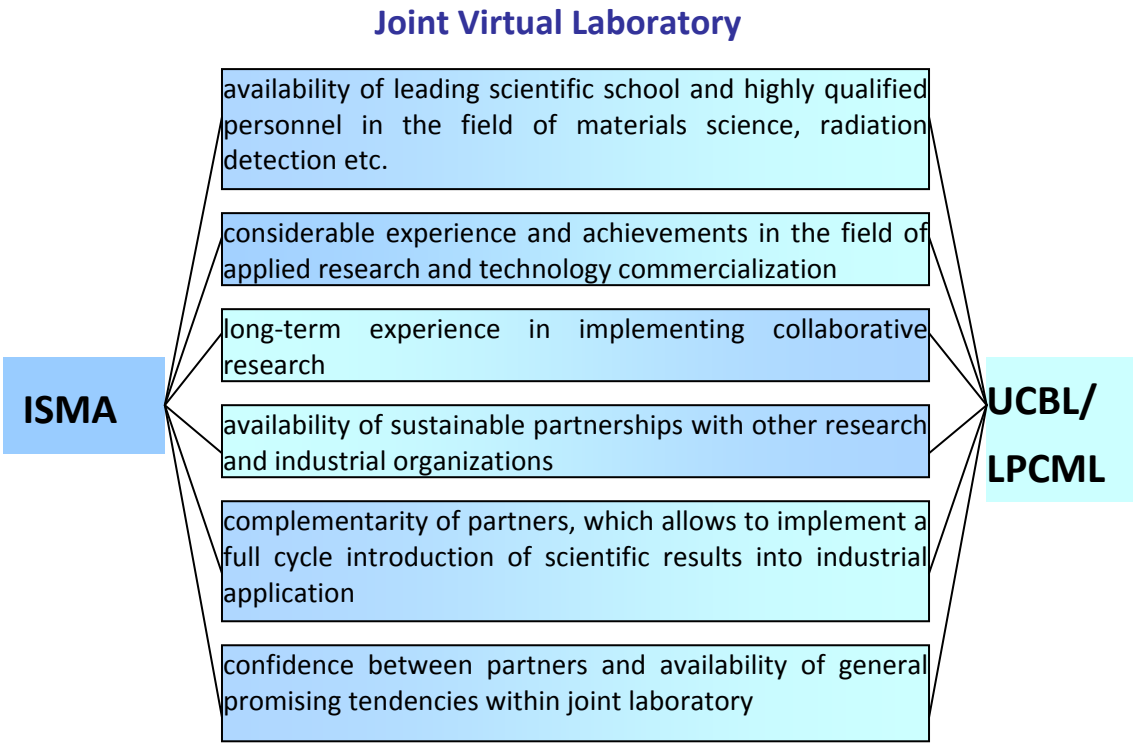
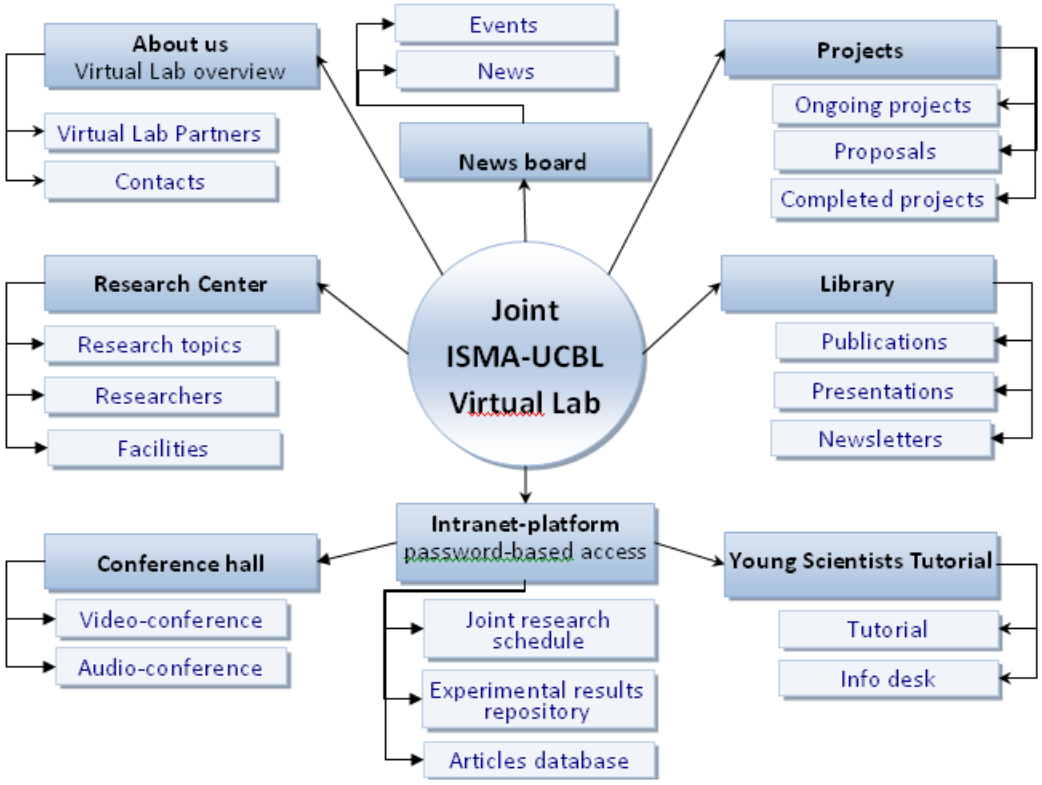


Figure 4 Key issues for the Joint Virtual Lab

In nearest future, Virtual Research Lab will be considered as a web-platform for cooperation of scientists from Kharkov and Lyon in the field of scintillation and luminescent materials science on mutual scientific challenges. Such research environment could combine efforts of scientists and technology experts to support future advances in fundamental and applied research of luminescent transformers of ionizing radiation. In long term perspective, it will be the environment for extending collaboration and involvement of other experts in research related to scintillation materials.



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In addition to the strategic impact, it was expected (see project description of work) that SUCCESS projects would create policy impacts by helping to address several EU policy objectives relating to its neighbour - Ukraine. Here we can mention Ukrainian policy makers, namely Ukrainian Innovation Agency, and the during a meeting with consortium partners in May 2013 in Kiev expressed their interest to take opportunity to link the future pan-European informal network in scintillators and luminescent materials to Ukrainian Laboratory (Association) of high energy physics that is currently under construction. This possible reciprocity addresses the key challenge of the SUCCESS exit strategy: to relate pan European excellence in material science to industrial partnership.

1.4.7. Summary

One of the main objectives of the project was to strengthen and to promote bilateral cooperation between two world-class research centres Ukrainian ISMA and French UCBL aimed to integration of Ukrainian research excellence into ERA. Project activities demonstrated how this integration is relevant to European competitiveness on the global technology market of scintillation and luminescent materials, sensors and devices based on them. A wide range of activities have been undertaken during the project live cycle (November 2010 - October 2013): knowledge sharing, the coordination of joint research and experimentation, the development of common research plans, mutual promotion of young scientists, training and building of future consortia to carry out joint projects in the new European program "Horizon 2020".

The most important outcome of SUCCESS project lies in the creation of the basis for future cooperation between leading European research centres. The strategic goal of this future cooperation is to bring European research and development activity in the field of radiation detection technology to the key position via creation of new physical models and approaches.

In other words SUCCESS has pushed forward the building of a common pan-European research and innovation infrastructure and informational system in radiation detections science, technology and

industry. The strategic goal of the Europe is now to support this initiative, ensuring key positions to EU organizations. It is important to strengthen the EU excellence in the matter which is lead today by American and Japanese players.

1.5. Project public website and relevant contact details

The Website is *per se* the main integrating instrument for raising awareness of the project: it contains complete information on the project events, findings, results, achievements, methodologies, studies, etc.

The SUCCESS public web-site http://success.kharkov.ua was developed in March 2011. The web-site was designed by the TBI Kharkov Technologies and agreed with ISMA.

SUCCESS project website follows the SUCCESS **branding**.

SUCCESS project Web site plays especially important role in information campaign: it integrates all the information related to the project and other dissemination tools, makes materials of the project accessible to all target groups.

All open Project materials are placed on a website, including

- information about project partners and links to their web-sites,
- project deliverables,
- related documents,
- useful links,
- news from project partners,
- calendar of project events,
- other documents related to Project

General description of the project and information on Project participants are practically constant issues; project news, events, deliverables and other web-pages have been regularly updated. Partners make contribution to project web site (news, events, etc.).

ISMA and TBI KT worked together to make sure that the information on the website is kept up-to-date and all the partners are reminded to provide contributions about the local activities.

Projects Partners and contact details: Participant no. *	Participant organisation name	Part. short name	Country	Contact details
1 (Coordinator)	Institute for Scintillation Materials of National Academy of Sciencis of Ukraine	ISMA	Ukraine	Oleksander Gektin, project coordinator, gektin@isc.kharkov.com
2	University Claude Bernard Lyon 1	UCBL	France	Christophe Dujardin, christophe.dujardin@univ-lyon1.fr
3	Inno TSD SA	inno	France	Svetlana Klessova, s.klessova@inno-group.com
4	Technology Business Incubator Kharkov Technologies Non-Profit Organisation	TBI	Ukraine	Nadia Yefimova, nadia@isc.kharkov.com

2. Use and dissemination of foreground

2.1. Section A (public)

2.1.1. List of all scientific (peer reviewed) publications related to the foreground of the project

LIST OF SCIENTIFIC (PEER REVIEWED) PUBLICATIONS, STARTING WITH THE MOST IMPORTANT ONES

NO.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers[8] (if available)	Is/Will open access[9] provided to this publication?
1	Luminescence properties of CsI:Eu crystals	N. Shiran	Optical Materials	34	ELSEVIER		2012	2017-2020		No
2	$^1S_0$-luminescence in $Ca_{1-x}Pr_xF_{2+x}$ crystals	I. Boiaryntseva	Functional materials	19	Institute for Single	Kharkov	2012	192-196		Yes

[8] A permanent identifier should be a persistent link to the published version full text if open access or abstract if article is pay per view) or to the final manuscript accepted for publication (link to article in repository).

[9] Open Access is defined as free of charge access for anyone via Internet. Please answer "yes" if the open access to the publication is already established and also if the embargo period for open access is not yet over but you intend to establish open access afterwards.

NO.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers[8] (if available)	Is/Will open access[9] provided to this publication?
					Crystals					
3	Emission centers in $Ca_{1-x}Pr_xF_{2+x}$ (x=0.35) solid solutions	I. Boiaryntseva	Journal of Applied Spectroscopy	79	SPRINGER		2012	589-594		No
4	Structure and scintillation yield of Ce-doped Al–Ga substituted yttrium garnet	O. Sidletskiy	Materials Research Bulletin	47	ELSEVIER		2012	3249–3252		No
5	Structure−Property Correlations in a Ce-Doped $(Lu,Gd)_2SiO_5$:Ce Scintillator	O. Sidletskiy	Crystal Growth & Design	12	ACS		2012	4411-4416		No
6	Radiation damage of CsI: Eu crystals	S. Vasyukov	Functional Materials	20	Institute for Single Crystals	Kharkov	2013	145-148		Yes
7	Scintillation Efficiency Improvement by Mixed Crystal Use	A. V. Gektin	IEEE TNS	in press	IEEE		2013			No
8	Radioluminescence of color centers in LiF crystals	N. Shiran	Radiation Measurements	56	ELSEVIER		2013	23-26		No
9	Optical and scintillation properties of CsI:In	S. Gridin	Functional Materials	20	Institute for Single Crystals	Kharkov	2013	284-289		Yes
10	Ce-doped $Li_6Ln(BO_3)_3$ (Ln = Y, Gd) Single crystals fibers grown by micro-	K. Lebbou	Optical Materials	35	ELSEVIER		2013	868-874		No

NO.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers[8] (if available)	Is/Will open access[9] provided to this publication?
	pulling down method and luminescence properties									
11	Channels of Energy Losses and Relaxation in CsI:A Scintillators (A=Tl, In)	S. Gridin	IEEE TNS	in press	IEEE		2013			No
12	Excitonic and activator relaxation channels in binary halide scintillation crystals	S. Gridin	Physica Status Solidi (b)	sent	Wiley					No
13	Estimation of the Electron Thermalization Length in Ionic Materials	A. Belsky	Journal of. Physical Chemistry Letters	4	ACS		2013	3534-3538		No
14	Structure and luminescence of CsI:Eu columnar films	A. Lebedynskiy	Journal of Applied Spectroscopy	79	SPRINGER		2012	583-588		No
15	Radiation induced defects in $M_{1-x}Pr_xF_{2+x}$ (M^{2+}=Ca, Sr, Ba, x=0.35) solid solutions	I. Boiaryntseva	Functional materials	19	Institute for Single Crystals	Kharkov	2012	313-318		Yes
16	The Influence of Praseodymium Concentration on the Luminescence Properties of $Ca_{1-x}Pr_xF_{2+x}$ ($0.002 \le x \le 0.35$)	I. Boiaryntseva	Optics and Spectroscopy	113	SPRINGER		2012	162-164		No
17	Effect of crystal structure on the luminescence properties of CaF_2-PrF_3 solid solutions	I. Boiaryntseva	Inorganic Materials	49	SPRINGER		2013	209-2113		No

NO.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers[8] (if available)	Is/Will open access[9] provided to this publication?
18	Modification of oxygen contenting LiF crystals grown by skull method	V. Taranyuk	Journal of Crystal Growth	380	ELSEVIER		2013	205-208		No
19	Melt composition and heat treatment at growth of $Gd_2Si_2O_7$ - based crystals	Ya. Gerasymov	Functional materials	20	Institute for Single Crystals	Kharkov	2013	234-238		Yes
20	Impact of codoping on structure, optical and scintillation properties of $Gd_2Si_2O_7$-based crystals	Ya. Gerasymov	Functional materials	20	Institute for Single Crystals	Kharkov	2013	15-19		Yes
21	Luminescence of $BaCl_2:Eu^{2+}$ particles dispersed in the NaCl host excited by synchrotron radiation	A. Voloshinovskii	Journal of Luminescence	135	ELSEVIER		2013	1-4		No
22	Vibrational properties of $LaPO_4$ nanoparticles in mid- and far-infrared domain	A. Voloshinovskii	Journal of Applied Physics	112	AIP		2012	124309		No
23	Formation and luminescent properties of $MeBr_2$-Eu (Me=Sr, Ba) microcrystals dispersed in NaBr matrix	A. Voloshinovskii	Functional materials	20	Institute for Single Crystals	Kharkov	2013	279-283		Yes
24	Band structure of $LaPO_4$	A. Voloshinovskii	Functional materials	20	Institute for Single Crystals	Kharkov	2013	373-377		Yes

NO.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers[8] (if available)	Is/Will open access[9] provided to this publication?
25	Europium emission centers in CsI:Eu crystal	A. Gektin	Optical Materials	35	ELSEVIER		2013	2613-1617		No

2.1.2. List of all dissemination activities

LIST OF DISSEMINATION ACTIVITIES

NO.	Type of activities[10]	Main leader	Title	Date/Period	Place	Type of audience[11]	Size of audience	Countries addressed
1	Workshop	ISMA	International Eu-Eastern Partnership Countries Experts "Advanced high temperature materials for core and novel energy engineering"	November 25, 2010	Kiev, Ukraine	R&D policy makers, researchers, community	20-30	EU, Ukraine
2	Forum	TBI KT	Ukrainian-Germany Business Forum	February 22, 2011	Kharkov, Ukraine	R&D policy makers, research and business community	40-50	Germany, Ukraine
3	Web publication	ISMA (Support: all partners)	SUCCESS project	March, 2011	Project web-site http://success.kharkov.ua	R&D policy makers, researchers, community	not determined	All
4	Seminar-training	TBI KT	Seminar-training "Innovation Development"	Kharkov, Ukraine	March 14-16, 2011	Researchers, business	25	Ukraine

[10] A drop down list allows choosing the dissemination activity: publications, conferences, workshops, web, press releases, flyers, articles published in the popular press, videos, media briefings, presentations, exhibitions, thesis, interviews, films, TV clips, posters, Other.

[11] A drop down list allows choosing the type of public: Scientific Community (higher education, Research), Industry, Civil Society, Policy makers, Medias, Other ('multiple choices' is possible).

NO.	Type of activities[10]	Main leader	Title	Date/Period	Place	Type of audience[11]	Size of audience	Countries addressed
						community		
5	Forum	TBI KT	IY International Business Forum "Problems and prospects of development of innovation activity in Ukraine"	Kiev, Ukraine	March24, 2011	R&D policy makers, researchers, community	60	EU, Ukraine
6	Workshop	TBI KT	Workshop "Innovation support instruments in scientific and technological programs of EU"	Uzhhorod, Ukraine	April 26-27, 2011	R&D policy makers, researchers, community	35	Ukraine
7	Training	TBI KT	New Opportunities for Participation of Ukrainian Specialists in FP7 Projects	Kharkov, Ukraine	May 31, 2012	Researchers, scientists	50	Ukraine
8	Workshop	TBI KT	International Workshop "Fostering of the integration of Ukrainian aeronautical industry to Europe"	Kharkov, Ukraine	May 21, 2011	R&D policy makers, researchers, community	50	EU, Ukraine
9	Workshop	TBI KT, ISMA	International Workshop "Preparation, submission and implementation of FP7 projects: administrative, financial and legal aspects",	Kharkov, Ukraine	June 3, 2011	R&D policy makers, researchers, community	60	EU, Ukraine
10	Workshop	TBI KT	International Workshop "Harmonization and synchronization of European and Ukrainian innovative programs"	Kharkov, Ukraine	30, June, 2011	R&D policy makers, researchers, community	100	EU, Ukraine
11	Workshop	ISMA, UCBL	The THIRD International Workshop on Advanced Spectroscopy and Optical Materials (IWASOM)	Gdansk, Poland	17-23 July, 2011	Researchers, R&D policy makers, young researchers	180	EU, Ukraine, other countries
12	Workshop	ISMA, UCBL	1st SUCCESS International Scientific Workshop "Scintillation	Gdansk, Poland	17-23 July,	Researchers, R&D policy	180	EU, Ukraine, other countries

NO.	Type of activities[10]	Main leader	Title	Date/Period	Place	Type of audience[11]	Size of audience	Countries addressed
			and Luminescence Materials"		2011	makers, young researchers		
13	Conference	ISMA, UCBL	11th International Conference on Inorganic Scintillators and their Applications (SCINT2011)	Giessen, Germany	12 -16 September, 2011	Researchers, R&D policy makers	250-300	EU, Ukraine, Asia, other countries
14	Conference	ISMA, UCBL	International Conference on Nuclear Medicine. Physics, Engineering and Practice (NUCMED)	Kharkov, Ukraine	19 -22 September, 2011	Researchers, R&D policy makers	130	EU, Ukraine, Russia, other countries
15	Workshop	ISMA, UCBL	2nd SUCCESS International Scientific Workshop "Scintillation Materials for Nuclear Medicine"	Kharkov, Ukraine	19 -22 September, 2011	Researchers, R&D policy makers	130	EU, Ukraine, Russia, other countries
16	Workshop	ISMA, UCBL	SUCCESS Workshop -Training Session "Prospects and Opportunities of Participation in FP7 Projects for Ukrainian Scientists"	Kharkov, Ukraine	21 September, 2011	Researchers, young scientists	30	EU, Ukraine, Russia
17	Symposium	ISMA, UCBL	IEEE Nuclear Science Symposium and-Medical Imaging Conference	Valencia, Spain	23 -29 October, 2011	Researchers, R&D policy makers	1200-1500	EU, Ukraine, other countries
18	Conference	ISMA	The 2nd International Young Scientists Conference on Luminescent Processes in Condensed Matter, LUMCOS 2011	Kharkov, Ukraine	14-18 November, 2011	Young researchers	30-40	Ukraine, Russia
19	Interview	TBI KT	Oblast TV channel OTB: "Idea Factory", "New opportunities for Kharkov scientists in European science & technologies programs: FP7- SUCCESS"	Kharkov, Ukraine	11 November, 2011	R&D policy makers, community	not determined	Ukraine
20	Interview	TBI KT	Oblast TV channel Orion, FP7 for Ukrainian research: SUCCESS experience	Kharkov, Ukraine	December 19, 2011	R&D policy makers, community	not determined	Ukraine

NO.	Type of activities[10]	Main leader	Title	Date/Period	Place	Type of audience[11]	Size of audience	Countries addressed
21	Symposium	ISMA, UCBL	IEEE Symposium on Radiation Measurements and Applications (SORMA-WEST 2012)	Oakland, California	14-17 May, 2012	Researchers, R&D policy makers	560	EU, Ukraine, other countries
22	Seminar	ISMA	Joint seminar of ISMA staff and Scientific Reference Team	Kharkov, Ukraine	29 May, 2012	Researchers, R&D policy makers	20	EU, Ukraine
23	Workshop	TBI KT, ISMA	Workshop «EC FP7 on science and innovation: opportunities for Ukrainian Specialists»	Kharkov, Ukraine	31 May, 2012	R&D policy makers, researchers, community	50	Ukraine
24	Conference	ISMA	4th European Conference on Crystal Growth (ECCG4 2012)	Glasgow, Scotland	17-20 June, 2012	Researchers, R&D policy makers	300	EU, Ukraine, other countries
25	Conference	ISMA, UCBL	8th International Conference on Luminescent Detectors and Transformers of Ionizing Radiation (LUMDETR2012)	Halle, Germany	10-14 September, 2012	Researchers, R&D policy makers	176	EU, Ukraine, other countries
26	Workshop	ISMA, UCBL	The 3d SUCCESS International Scientific Workshop " Luminescence and Luminescent materials"	Halle, Germany	10-14 September, 2012	Researchers, R&D policy makers	176	EU, Ukraine, other countries
27	Symposium	ISMA, UCBL	IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC 2012),	Annaheim, USA	29 October-3 November, 2012	Researchers, R&D policy makers	1200-1500	EU, Ukraine, other countries
28	Workshop	ISMA, UCBL	The 4th SUCCESS International Scientific Workshop "Future SUCCESS"	Lyon, France	11-12 December, 2012	Researchers, R&D policy makers	22	EU, Ukraine
29	Round Table	TBI KT, ISMA	Round Table "European framework research and innovation programs: results and prospects for Ukraine"	Kharkov, Ukraine	11 December, 2012	R&D policy makers, researchers, community	30	Ukraine
30	Workshop	TBI KT	Scientific and Practical Workshop «Innovation Development of the	Kharkov, Ukraine	20 December,	R&D policy makers,	50	Ukraine

NO.	Type of activities[10]	Main leader	Title	Date/Period	Place	Type of audience[11]	Size of audience	Countries addressed
			Kharkov Region». International cooperation in research and innovation projects		2012	researchers, community		
31	Forum	TBI KT	VI International Business-Forum «Problems and Prospects of Innovation activities in Ukraine». International cooperation in science and research	Kyiv, Ukraine	22 March, 2013	R&D policy makers, researchers, community	60	Ukraine
32	Conference	ISMA, UCBL	12th International Conference on Inorganic Scintillators and Their Applications (SCINT 2013)	Shanghai, China	15-19 April, 2013	R&D policy makers, researchers, community	130	EU, Asia, Ukraine, other countries
33	Workshop	ISMA, UCBL	5th SUCCESS International Scientific Workshop " Scintillation Processes and Materials for Radiation Detection",	Shanghai, China	15-19 April, 2013	R&D policy makers, researchers, community	130	EU, Asia, Ukraine, other countries
34	Workshop	TBI KT	The Workshop "Approaches to preparation and implementation of innovation projects in Ukraine", Workshop was in the frameworks of 7FP START Project "Development of Cooperation Ukraine-EC in the sphere of material science"	Kyiv, Ukraine	17 May, 2013	R&D policy makers, researchers, community	50	Ukraine
35	Meeting	TBI KT	The Second Meeting of Joint-EU-Ukraine S&T Committee 2013. Ukraine State Agency for Science, Innovation and Informatization	Kyiv, Ukraine	24 May, 2013	R&D policy makers, researchers, community	60	Ukraine
36	Forum	TBI KT,	FP7 Training HORIZON 2020	Kharkov,	3	R&D policy	40	Ukraine

NO.	Type of activities[10]	Main leader	Title	Date/Period	Place	Type of audience[11]	Size of audience	Countries addressed
		ISMA	information session within STEP Forum	Ukraine	June, 2013	makers, researchers, community		
37	Conference	TBI KT, ISMA	The First International Business-Conference "ABC: Ukraine & Partners"	Kyiv, Ukraine	13-14 June, 2013	R&D policy makers, researchers, community	50	Ukraine
38	Summer School	ISMA	15th International Summer School on Crystal Growth (ISSCG – 15)	Gdańsk, Poland	4-10 August, 2013	Researchers, Young scientists	70	EU, Ukraine, other countries
39	Conference	ISMA	17th International Conference on Crystal Growth and Epitaxy (ICCGE-17)	Warsaw, Poland	11-16 August, 2013	R&D policy makers, researchers, community	300	EU, Ukraine, other countries
40	Meeting	ISMA	European materials Research Society 2013 Fall Meeting (E-MRS 2013)	Warsaw, Poland	16 September 2013	R&D policy makers, researchers, community	60	EU, Ukraine, other countries
41	Conference	ISMA, UCBL, TBI KT	SUCCESS International Scientific Conference "Advanced Scintillation Materials" (ASM-2013),	Kharkov, Ukraine	23-27 September, 2013	R&D policy makers, researchers, community	90	EU, Asia, Ukraine, other countries
42	Round Table	TBI KT, ISMA	Round Table "Prospects of NBIC-technologies development in Ukraine. European tendencies of research and innovation development. HORIZON 2020 Program: opportunities for Ukraine"	Kharkov, Ukraine	30 October, 2013	R&D policy makers, researchers, community	30	Ukraine
43	Conference	TBI KT, ISMA	International research and practice conference "Competitiveness and Innovations: Issues of Research and Practice",	Kharkov, Ukraine	30 October, 2013	R&D policy makers, researchers, community	50	Ukraine

NO.	Type of activities[10]	Main leader	Title	Date/Period	Place	Type of audience[11]	Size of audience	Countries addressed
44	Interview	ISMA	An interview with the Ukrinform (national news agency of Ukraine) "ISMA SUCCESS project is real access to EU capacities"	Ukrinform (national news agency of Ukraine)	1 November, 2013	R&D policy makers, community	not determined	Ukraine

2.2. Section B (Confidential12)

This session is not applicable to SUCCESS project

Part B1

Type of IP Rights[13]:	Confidential Click on YES/NO	Foreseen embargo date dd/mm/yyyy	Application reference(s) (e.g. EP123456)	Subject or title of application	Applicant (s) (as on the application)

Part B2

Type of Exploitable Foreground[14]	**Description of exploitable foreground**	**Confidential Click on YES/NO**	**Foreseen embargo date dd/mm/yyyy**	**Exploitable product(s) or measure(s)**	**Sector(s) of application[15]**	**Timetable, commercial or any other use**	**Patents or other IPR exploitation (licences)**	**Owner & Other Beneficiary(s) involved**

[12] Note to be confused with the "EU CONFIDENTIAL" classification for some security research projects.

[13] A drop down list allows choosing the type of IP rights: Patents, Trademarks, Registered designs, Utility models, Others.

[19] A drop down list allows choosing the type of foreground: General advancement of knowledge, Commercial exploitation of R&D results, Exploitation of R&D results via standards, exploitation of results through EU policies, exploitation of results through (social) innovation.

[15] A drop down list allows choosing the type sector (NACE nomenclature) : http://ec.europa.eu/competition/mergers/cases/index/nace_all.html

2.3. Report on societal implications

Replies to the following questions will assist the Commission to obtain statistics and indicators on societal and socio-economic issues addressed by projects. The questions are arranged in a number of key themes. As well as producing certain statistics, the replies will also help identify those projects that have shown a real engagement with wider societal issues, and thereby identify interesting approaches to these issues and best practices. The replies for individual projects will not be made public.

A General Information *(completed automatically when **Grant Agreement number** is entered.*

Grant Agreement Number:	266531
Title of Project:	Strengthening Ukraine and EU research cooperation in the field of Material Sciences
Name and Title of Coordinator:	Institute for Scintillation Materials of Academy of Science of Ukraine (ISMA), deputy director Oleksander Gektin

B Ethics

1. Did your project undergo an Ethics Review (and/or Screening)? • If Yes: have you described the progress of compliance with the relevant Ethics Review/Screening Requirements in the frame of the periodic/final project reports? Special Reminder: the progress of compliance with the Ethics Review/Screening Requirements should be described in the Period/Final Project Reports under the Section 3.2.2 *'Work Progress and Achievements'*	***No***
2. Please indicate whether your project involved any of the following issues (tick box) :	***No***
RESEARCH ON HUMANS	
• Did the project involve children?	
• Did the project involve patients?	
• Did the project involve persons not able to give consent?	
• Did the project involve adult healthy volunteers?	
• Did the project involve Human genetic material?	
• Did the project involve Human biological samples?	

• Did the project involve Human data collection?	
RESEARCH ON HUMAN EMBRYO/FOETUS	
• Did the project involve Human Embryos?	
• Did the project involve Human Foetal Tissue / Cells?	
• Did the project involve Human Embryonic Stem Cells (hESCs)?	
• Did the project on human Embryonic Stem Cells involve cells in culture?	
• Did the project on human Embryonic Stem Cells involve the derivation of cells from Embryos?	
PRIVACY	
• Did the project involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	
• Did the project involve tracking the location or observation of people?	
RESEARCH ON ANIMALS	
• Did the project involve research on animals?	
• Were those animals transgenic small laboratory animals?	
• Were those animals transgenic farm animals?	
• Were those animals cloned farm animals?	
• Were those animals non-human primates?	
RESEARCH INVOLVING DEVELOPING COUNTRIES	
• Did the project involve the use of local resources (genetic, animal, plant etc)?	
• Was the project of benefit to local community (capacity building, access to healthcare, education etc)?	
DUAL USE	
• Research having direct military use	
• Research having the potential for terrorist abuse	

C Workforce Statistics

3. Workforce statistics for the project: Please indicate in the table below the number of people who worked on the project (on a headcount basis).

Type of Position	Number of Women	Number of Men
Scientific Coordinator		1
Work package leaders	2	2
Experienced researchers (i.e. PhD holders)	3	7
PhD Students		3
Gender workforce repartition	14	19

4. How many additional researchers (in companies and universities) were recruited specifically for this project?	**No**
Of which, indicate the number of men:	

D Gender Aspects

5. Did you carry out specific Gender Equality Actions under the project?

○ No
○

6. Which of the following actions did you carry out and how effective were they?

		Not at all effective				Very effective
❑	Design and implement an equal opportunity policy	○	○	○	○	○
❑	Set targets to achieve a gender balance in the workforce	○	○	○	○	○
❑	Organise conferences and workshops on gender	○	○	○	○	○
❑	Actions to improve work-life balance	○	○	○	○	○
○	Other:					

7. Was there a gender dimension associated with the research content – i.e. wherever people were the focus of the research as, for example, consumers, users, patients or in trials, was the issue of gender considered and addressed?

○ Yes- please specify

○ No

E Synergies with Science Education

8. Did your project involve working with students and/or school pupils (e.g. open days, participation in science festivals and events, prizes/competitions or joint projects)?

Yes ○ Yes- please specify

Training sessions organized

○ No

9. Did the project generate any science education material (e.g. kits, websites, explanatory booklets, DVDs)?

○ Yes- please specify

No ○ No

F Interdisciplinarity

10. Which disciplines (see list below) are involved in your project?

No ○ Main discipline[16]:

○ Associated discipline[16]: ○ Associated discipline[16]:

[16] Insert number from list below (Frascati Manual).

G Engaging with Civil society and policy makers

11a Did your project engage with societal actors beyond the research community? *(if 'No', go to Question 14)*	○ ○	No

11b If yes, did you engage with citizens (citizens' panels / juries) or organised civil society (NGOs, patients' groups etc.)?

- ○ No
- ○ Yes- in determining what research should be performed
- ○ Yes - in implementing the research
- ○ Yes, in communicating /disseminating / using the results of the project

11c In doing so, did your project involve actors whose role is mainly to organise the dialogue with citizens and organised civil society (e.g. professional mediator; communication company, science museums)?	○ ○	Yes No

12. Did you engage with government / public bodies or policy makers (including international organisations)

- ○ No
- ○ Yes- in framing the research agenda
- ○ Yes - in implementing the research agenda
- ○ Yes, in communicating /disseminating / using the results of the project

13a Will the project generate outputs (expertise or scientific advice) which could be used by policy makers?

- ○ Yes – as a **primary** objective (please indicate areas below- multiple answers possible)
- ○ Yes – as a **secondary** objective (please indicate areas below - multiple answer possible)
- ○ No

13b If Yes, in which fields?

Agriculture		Energy		Human rights	
Audiovisual and Media		Enlargement		Information Society	
Budget		Enterprise		Institutional affairs	
Competition		Environment		Internal Market	
Consumers		External Relations		Justice, freedom and security	
Culture		External Trade		Public Health	
Customs		Fisheries and Maritime Affairs		Regional Policy	
Development Economic and Monetary Affairs		Food Safety		Research and Innovation	
Education, Training, Youth		Foreign and Security Policy		Space	
Employment and Social Affairs		Fraud		Taxation	
		Humanitarian aid		Transport	

13c If Yes, at which level?

- ○ Local / regional levels
- ○ National level
- ○ European level
- ○ International level

H Use and dissemination

14. How many Articles were published/accepted for publication in peer-reviewed journals?	**25**
To how many of these is open access[17] provided?	**8**
How many of these are published in open access journals?	
How many of these are published in open repositories?	
To how many of these is open access not provided?	**17**
Please check all applicable reasons for not providing open access:	
❑ publisher's licensing agreement would not permit publishing in a repository ❑ no suitable repository available ❑ no suitable open access journal available ❑ no funds available to publish in an open access journal ❑ lack of time and resources ❑ lack of information on open access ❑ other[18]: ……	

15. How many new patent applications ('priority filings') have been made? *("Technologically unique": multiple applications for the same invention in different jurisdictions should be counted as just one application of grant).*		Not applicable
16. Indicate how many of the following Intellectual Property Rights were applied for (give number in each box).	Trademark	Not applicable
	Registered design	Not applicable
	Other	Not applicable
17. How many spin-off companies were created / are planned as a direct result of the project?		Not applicable
Indicate the approximate number of additional jobs in these companies:		

18. Please indicate whether your project has a potential impact on employment, in comparison with the situation before your project:

[17] Open Access is defined as free of charge access for anyone via Internet.

[18] For instance: classification for security project.

❑	Increase in employment, or	❑	In small & medium-sized enterprises
❑	Safeguard employment, or	❑	In large companies
❑	Decrease in employment,	❑	None of the above / not relevant to the project
❑	Difficult to estimate / not possible to quantify		

19. For your project partnership please estimate the employment effect resulting directly from your participation in Full Time Equivalent (*FTE = one person working fulltime for a year*) jobs:	*Indicate figure:*
Difficult to estimate / not possible to quantify	❑

I Media and Communication to the general public

20. As part of the project, were any of the beneficiaries professionals in communication or media relations?

○ Yes ○ No

21. As part of the project, have any beneficiaries received professional media / communication training / advice to improve communication with the general public?

○ Yes ○ No

22 Which of the following have been used to communicate information about your project to the general public, or have resulted from your project?

❑	Press Release	❑	Coverage in specialist press
❑	Media briefing	❑	Coverage in general (non-specialist) press
❑	TV coverage / report	❑	Coverage in national press
❑	Radio coverage / report	❑	Coverage in international press
❑	Brochures /posters / flyers	❑	Website for the general public / internet
❑	DVD /Film /Multimedia	❑	Event targeting general public (festival, conference, exhibition, science café)

23 In which languages are the information products for the general public produced?

❑	Language of the coordinator	❑	English
❑	Other language(s)		Russian, Ukrainian

***Question F-10*:** Classification of Scientific Disciplines according to the Frascati Manual 2002 (Proposed Standard Practice for Surveys on Research and Experimental Development, OECD 2002):

FIELDS OF SCIENCE AND TECHNOLOGY

1.

N

NATURAL SCIENCES

1.1 Mathematics and computer sciences [mathematics and other allied fields: computer sciences and other allied subjects (software development only; hardware development should be classified in the engineering fields)]

1.2 Physical sciences (astronomy and space sciences, physics and other allied subjects)

1.3 Chemical sciences (chemistry, other allied subjects)

1.4 Earth and related environmental sciences (geology, geophysics, mineralogy, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, oceanography, vulcanology, palaeoecology, other allied sciences)

1.5 Biological sciences (biology, botany, bacteriology, microbiology, zoology, entomology, genetics, biochemistry, biophysics, other allied sciences, excluding clinical and veterinary sciences)

2

E

INGINEERING AND TECHNOLOGY

2.1 Civil engineering (architecture engineering, building science and engineering, construction engineering, municipal and structural engineering and other allied subjects)

2.2 Electrical engineering, electronics [electrical engineering, electronics, communication engineering and systems, computer engineering (hardware only) and other allied subjects]

2.3. Other engineering sciences (such as chemical, aeronautical and space, mechanical, metallurgical and materials engineering, and their specialised subdivisions; forest products; applied sciences such as geodesy, industrial chemistry, etc.; the science and technology of food production; specialised technologies of interdisciplinary fields, e.g. systems analysis, metallurgy, mining, textile technology and other applied subjects)

3.

MEDICAL SCIENCES

3.1 Basic medicine (anatomy, cytology, physiology, genetics, pharmacy, pharmacology, toxicology, immunology and immunohaematology, clinical chemistry, clinical microbiology, pathology)

3.2 Clinical medicine (anaesthesiology, paediatrics, obstetrics and gynaecology, internal medicine, surgery, dentistry, neurology, psychiatry, radiology, therapeutics, otorhinolaryngology, ophthalmology)

3.3 Health sciences (public health services, social medicine, hygiene, nursing, epidemiology)

4.

A

AGRICULTURAL SCIENCES

4.1 Agriculture, forestry, fisheries and allied sciences (agronomy, animal husbandry, fisheries, forestry, horticulture, other allied subjects)

4.2 Veterinary medicine

5.

S

SOCIAL SCIENCES

5.1 Psychology

5.2 Economics

5.3 Educational sciences (education and training and other allied subjects)

5.4 Other social sciences [anthropology (social and cultural) and ethnology, demography, geography (human, economic and social), town and country planning, management, law, linguistics, political sciences, sociology, organisation and methods, miscellaneous social sciences and interdisciplinary , methodological and historical S1T activities relating to subjects in this group. Physical anthropology, physical geography and psychophysiology should normally be classified with the natural sciences].

6.

H

HUMANITIES

6.1 History (history, prehistory and history, together with auxiliary historical disciplines such as archaeology, numismatics, palaeography, genealogy, etc.)

6.2 Languages and literature (ancient and modern)

6.3 Other humanities [philosophy (including the history of science and technology) arts, history of art, art criticism, painting, sculpture, musicology, dramatic art excluding artistic "research" of any kind, religion, theology, other fields and subjects pertaining to the humanities, methodological, historical and other S1T activities relating to the subjects in this group]

3. Final report on the distribution of the European Union financial contribution

This report will be submitted to the Commission within 30 days after receipt of the final payment of the European Union financial contribution.