Seventh Framework Programme
Information and Communication Technologies
Coordination and Support Actions (Supporting)

EU Project title:	**Linking R&D Strategies, Foresight and Stimulation of EU-Russia Cooperation in Nanoelectronics Technology**
Project Acronym:	**EU-RU.NET**
Grant agreement no.:	**257511**
Type of funding scheme:	**Coordination and support actions (supporting)**

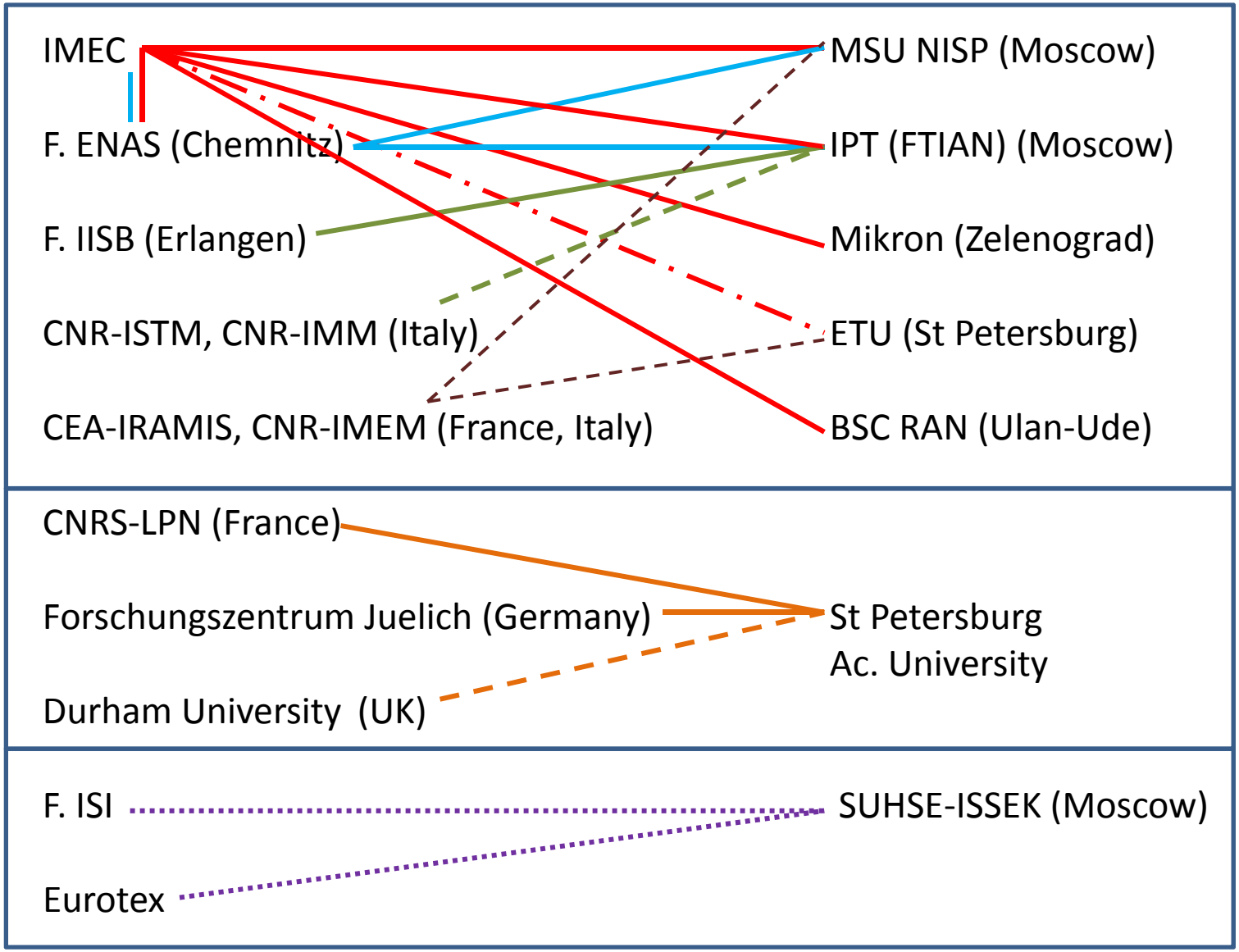
Deliverable number:	Joint D3.4 and D3.5
Deliverable title:	Final Status Report on EU-RU.NET Pilot Projects
Dissemination level:	Restricted to EU-RU.NET Project Participants
Scheduled delivery month:	May 2012
Actual delivery month:	May 2012
Approved by:	EU-RU.NET Consortium

Status of pilot projects

N	Project title, participants	Papers: Journ / Conf	Joint papers: Journ / conf	Workshop / place
1	**SIMULATION OF NANOSCALE FIELD EFFECT TRANSISTORS. Leader: V. Lukichev, IPT RAS; Participant: Fraunhofer-IISB (Erlangen)**	4/0 3 papers FTIAN	1/0	
2	**RELIABILITY OF CU/LOW-K INTERCONNECTS: CHALLENGES OF PLASMA PROCESSING Leader: M. Baklanov (IMEC); Participants: Fraunhofer-ENAS; MSU (SINP)**	N/A	7/1	Nov. 2010: Chemnitz July 2011: Moscow June 2012: Moscow
3	**RELIABILITY OF CU/LOW-K INTERCONNECTS: MECHANISMS OF LOW-K OF FAILURE AND DEGRADATION. Leader: M. Baklanov (IMEC); Participant: Buryat Science Center of SB RAS (Ulan-Ude)**	N/A	2/0 (one of them is a book chapter)	July 2011: Ulan-Ude
4	**RESEARCH AND DEVELOPMENT OF NANODIAMOND EMITTER-BASED AUTOEMISSION DEVICES Project leader: O. Gutshin (MIKRON); Participant: IMEC**	0/7	0/5	
5	**III-V SEMICONDUCTOR NANOWIRES FOR LIGHT EMITTING DEVICES ON SILICON Leader: V. Dubrovskii (St Petersburg Ac. University; Participant: CNRS-LPN (Laboratory of Photonics and Nanostructures), France**	N/A	3/3	
6	**FABRICATION AND STUDY OF THE NOVEL SEMICONDUCTING ORGANIC AND CARBON NANOSTRUCTURED MATERIALS FOR NANOELECTRONICS APPLICATIONS Leader: Dr. V. Butko (St Petersburg Ac. University); Participant: Dr. S. Vitusevich, Peter Grünberg Institute, Forschungszentrum Juelich, Germany**	1/9	1/9(?)	

N	Project title, participants	Papers: Journ/Conf	Joint papers: Journ/ conf	Workshop/place
7	**MOLECULAR SELF-ASSEMBLING FOR SEALING OF ULTRA LOW-K DIELECTRICS DEVELOPED FOR ADVANCED NANOELECTRONIC DEVICES.** **Leader: V. Luchinin (ETU, St Petersburg)** **Participant: M. Baklanov (IMEC)**		1/1 One patent	
8	**PLASMA ETCHING OF NEW MATERIALS INVOLVED IN GATE STACK PATTERNING FOR ULSI** **Project Leader: V. Lukichev, IPT RAS (Moscow)** **Participants: IMEC, Fraunhofer-IISB (Erlangen), and Fraunhofer-ENAS (Chemnitz)**	The project was changed to "Challenges of LWR and LER in advanced technology nodes" by decision of meeting in Chemnitz, Nov 2010. First results will reported during this meeting.		Nov 2010, Chemnitz June 2012, Moscow
9	**MODELING OF NANOSCALE ELECTRONIC DEVICES BASED ON LOW-DIMENSIONAL NANOSTRUCTURED MATERIALS. Leader: F. Mercuri (CNR-ISTM)** **Participants: IPT-RAS; CNR-IMM**	7/1	0/0	
10	**3D SELF-ASSEMBLY FOR MOLECULAR ELECTRONICS AND PHOTONICS. leader: Dr. F. Charra (CEA-IRAMI)** **Participants: CNR-IMEM ; MSU; ETU**	Not active: has been changed		
11	**COMPARATIVE STUDY OF EUROPEAN AND RUSSIAN NANOELECTRONICS INNOVATION SYSTEMS AND THE WAYS TO BUILD SYNERGY FOR THE BENEFIT OF FUTURE COOPERATION; Leader: R. Vardapetian (EUROTEX); Participants: ISI and SUHSE – ISSEK.**	9/8	0/0	
12	**MONOLITHIC INTEGRATION OF LIGHT-EMITTING DEVICES AND SILICON TRANSISTORS** **Leader: A. Yegorov (St Petersburg Ac. University;** **Participant: Durham University, UK**	Not active		

Scheme of collaboration



Scheme of collaboration

The collaboration activity can be divided into 2 groups:

- Micro-/nanoelectronics and nanomaterials
- Photonics and nanomaterials

Most active Companies:

- 1 group: imec and IPT RAS, MSU
- 2 group: St Petersburg Academic University

Total number of pilot projects:	**12**
Micro/nanoelectronics and materials:	*8*
Photonics and materials:	*3*
Networking research:	*1*

Results summary

N	Partners	Publications (reported)	JP (total)	Joint JP	Proc.	Joint Proc.	Patents
1	IPT RAS/Fr-IISB	4	3	1	1	0	
2	Imec/NISP MSU	8	7	7	1	1	
3	Imec/ BSU SB RAN	6	2	2	4	4	
4	Mikron/imec	7	0	0	7	5	Pending
5	SP_AU/CNRS-LPN	6	3	3	3	3	
6	SP_AU/P.Grunberg Institute (Juelich)	9	9	1	8	8	
7	ETU/imec	2	0	0	1	1	Usprov 2012/192
8	IPT/imec/Fr-ENAS	2 Workshops: November 2010 (Chemnitz), June 2012 (Moscow)					
9	CNR-ISTM/IPT	7	5	0	2	0	
10	CNR-IMEM/ITP, IRE*	4	0	0	4	4	
11	Eurotex/ISI, SUHSE-ISSEK	17	9	0	8	0	
12	SP_AU/Durham University	No information					

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12	SP_AU/Durham University	No information					

* Initial proposal (CEA-IRAMIS/CNR-IMEM, MSU; ETU) didn't show any joint activities and it was replaced to CNR-IMEM/ ITP, IRE under the lead of Dr. Iannotta.

Achievements

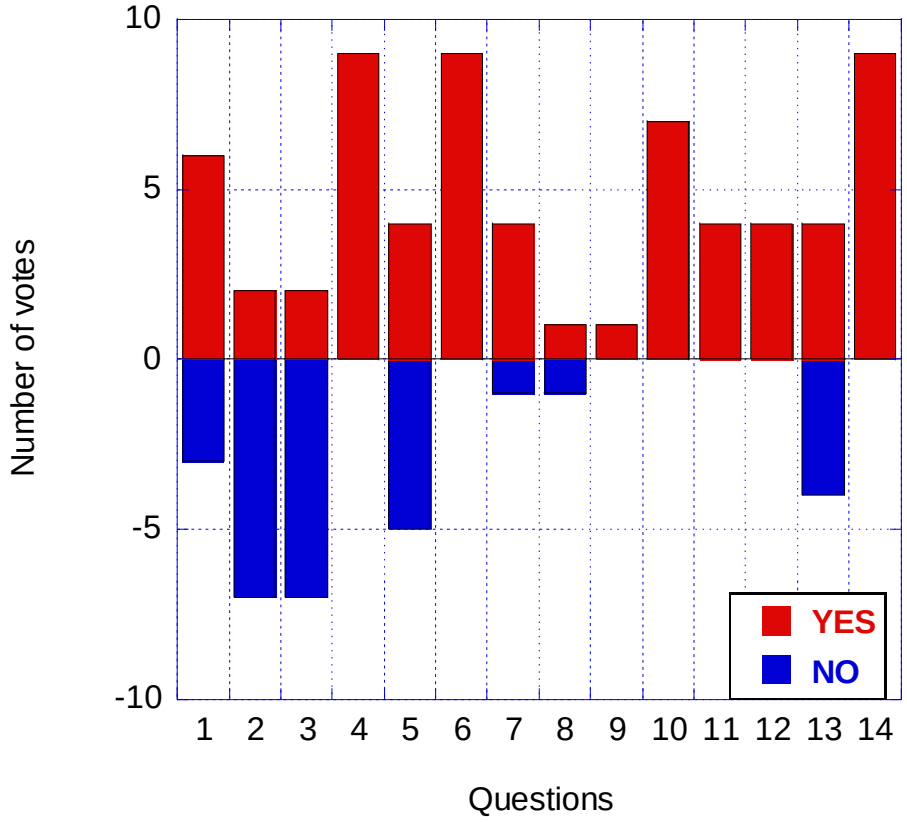
Leaders in citations and impact factors.

N	Partners	Number of joint journal/proceedings papers	Citations (journal papers)	Total impact factor (journal papers)
2	imec/MSU NISP	8	**18**	12.24
5	StP_AU/CNRS_LPN	3	10	**15.35**
3	Imec/BSC RAN	2*	0	1.58
6	StP_AU/Julich	1	1	1.381

* One journal paper and one book's chapter

Questionnaire

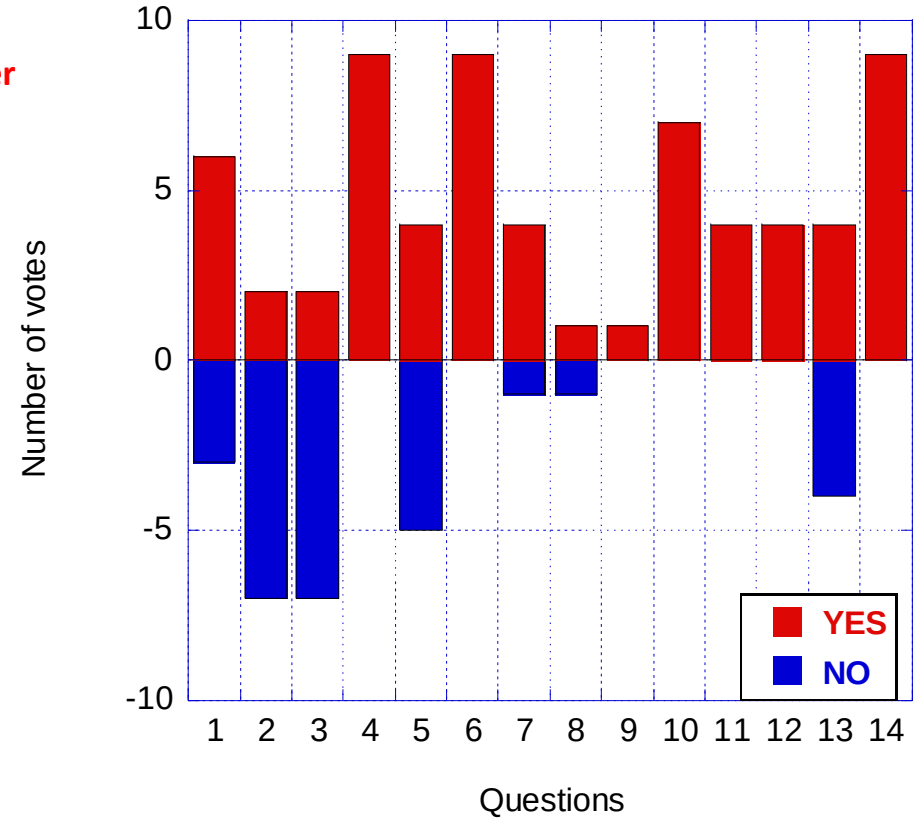
No	Question
1.	Did you know your European/Russian partners before the start of the EU-RU.NET Project?
2.	Would you have conducted this joint investigation if it were not for the EU-RU.NET Project?
3.	Have you had sufficient time to start and finish your Pilot Project?
4.	Are you intending to continue this joint investigation after the end of the EU-RU.NET Project?
5.	Were money/financial support a decisive issue in the success or failure of your Pilot Project?
	Mention max. 3 main outcomes of your Pilot Project?
6	a) New interesting contacts.
7	b) Joint publications.
8	c) Patent applications.
9	d) New EU Project proposals.
10	e) Strengthened bilateral cooperation
11	f) Better understanding of partners' environment.
12	g) More insight into partners' capabilities.
13	Has the need for getting a visa to Russia or the EU played a significant role in your Pilot Project?
14	Do you think there is a need for future Coordination and Support Actions like the EU-RU.NET Project?



Questionnaire (conclusions)

4. Are you intending to continue this joint investigation after the end of the EU-RU.NET Project?
6. New interesting contacts.
14. Do you think there is a need for future Coordination and Support Actions like the EU-RU.NET Project?
10. Strengthened bilateral cooperation;
1. Did you know your European/Russian partners before the start of the EU-RU.NET Project?

2. Would you have conducted this joint investigation if it were not for the EU-RU.NET Project?
3. Have you had sufficient time to start and finish your Pilot Project?



Conclusions.

1. All participants have intention to continue collaboration because of new interesting contacts and strengthening of existing contacts. EU support is important.

2. Most of conducted collaborative researches wouldn't be possible without EU-RU.NET Project but the time was not sufficient (in the case of new contacts).

Conclusions and final remarks

1. Some groups were very active and successful. The number of publications, citation and impact factors are impressive.

2. However, the number of groups published joint papers is limited.

3. Some groups continue working in the area shown in the EU-RU.NET project but they are working separately. A typical example is the pilot project # 9: both V. Vyurkov (RAS) and F. Mercuri (CNR) are active in the area of proposed collaboration but their papers are independent.

4. Some groups (Dubrovskii, Academic University RAS) was able to extend their Collaboration to different countries and research communities with excellent results.