NanoElectronics Roadmap for Europe:
Identification and Dissemination

D7.2	Dissemination, Communication and Data Management plan		
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ABSTRACT:

This report of the Project "NanoElectronics Roadmap for Europe: Identification and Dissemination" (NEREID) describes the project's dissemination idea of: Starting from a dissemination subject (all publishable NEREID results including the evolving roadmap) different dissemination actions/tools are performed to reach the dissemination objectives. Furthermore, the report is also about the project internal communication and how to manage all data during and after the project work.

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1 PU = Public; CO = Confidential, only for members of the Consortium (including the EC services).
2 R = Report; R+O = Report plus Other. Note: all "O" deliverables must be accompanied by a deliverable report.
3 eg DX.Y_name to the deliverable_v0xx.   v1 corresponds to the final release submitted to the EC.

Deliverable Contributors:	Name	Organisation	Role / Title
Deliverable Leader[4]	Ralf Popp	ECN	WP leader
Contributing Author(s)[5]	Jürgen Haase	ECN	Project partner
	Francis Balestra	Grenoble INP	Project coordinator
	Sylvie Pitot	Grenoble INP	Project manager
	Pascale Caulier	Sinano	Project manager
Reviewer(s)[6]	Livio Baldi	Advisory Board	Advisory Board
	Clivia Sotomayor Torres	ICN2	Project partner
Final review and approval			

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[4] Person from the lead beneficiary that is responsible for the deliverable.

[5] Person(s) from contributing partners for the deliverable.

[6] Typically person(s) with appropriate expertise to assess the deliverable quality.

7 Status = "Draft"; "In Review"; "Released".

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Introduction

It is the objective of NEREID to define a new roadmap for Nanoelectronics. It will cover research from Beyond CMOS to Heterogeneous Integration/More than Moore, complementing the Multi-Annual Plan of ECSEL. Thus, it is leveraging the strengths and needs of the European eco-system, in order to achieve an early identification of promising novel technologies, and to help focusing resources on key R&D topics all along the innovation chain. Therefore, NEREID will base its roadmap on the requirements of European semiconductor and application industry and on the achievements of other European initiatives, in particular on the initiative "European Nanoelectronics Infrastructure for Innovation" (ENI2) and the commission's coordination action "Ecosystems Technology and Design for Nanaoelectronics" (NANOTEC). Involving a large group of industrial and academic experts, NEREID will cover all TRL's, with a clear identification of short, medium and long term objectives and priorities.

Doing so, the promotion of a wide dissemination through linked European organizations is mandatory. Thus, the roadmap will be disseminated by all NEREID partners and especially through ENI2 and participating academic and industrial organizations, to be used as reference for future European and national research programs. Last but not least it will be at the basis of the European contribution to the International Technology Roadmap for Semiconductors (ITRS), the International Roadmap for Devices and Systems (IRDS) and their European successor respectively. This dissemination plan including a concept of data management, which will be updated regularly, has been prepared to fix the dissemination steps.
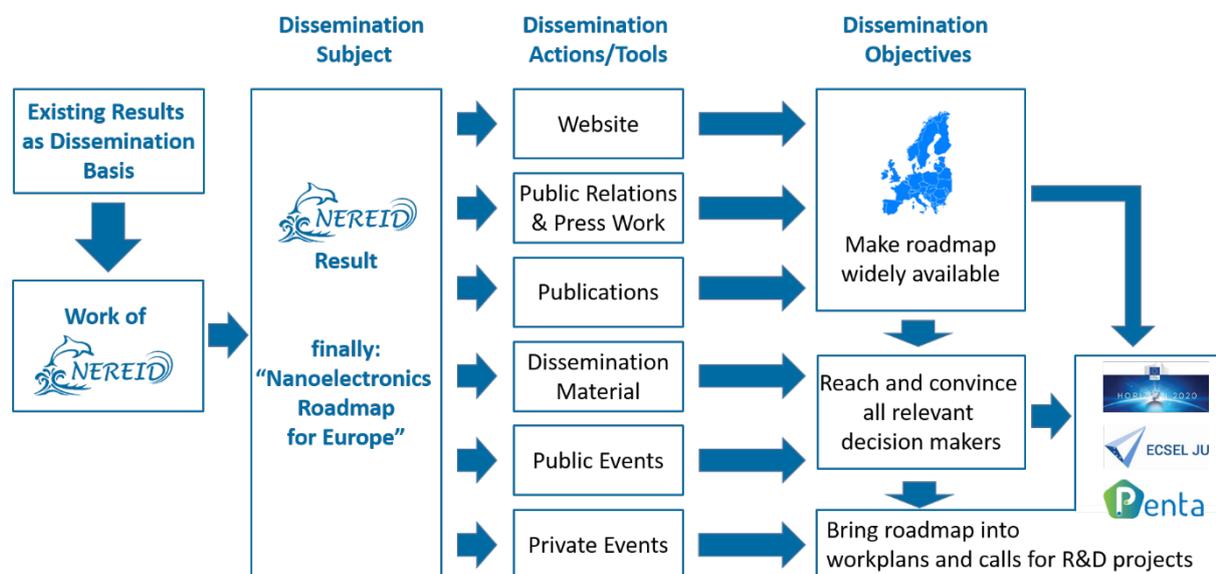
1. Dissemination

1.1 Introduction

The NEREID project's main purpose is to disseminate its result, the "NanoElectronics Roadmap for Europe" to a broad audience engaged in Micro- and Nanoelectronics coming from industry and academia as well as to policy makers and public authorities especially at European level. This will be done by all partners following the NEREID dissemination idea.

1.2 Dissemination Idea

The following picture gives an idea how the dissemination of NEREID works.

Starting from existing results in the field as a dissemination basis, the project's work will lead to results, which finally will become the "NanoElectronics Roadmap for Europe". These results will be the subject of dissemination. This subject will be carried out by different dissemination actions/tools to meet the three main dissemination objectives. In the following sections of the report, the different blocks of the picture will be explained in detail.

Of course, each dissemination action will undergo the IPR validation process foreseen in the consortium and grant agreements, and will therefore be submitted to the NEREID General Assembly for approval.

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1.3   Dissemination Objectives

As stated in the NEREID Full Project Proposal, dissemination and communication of the "NanoElectronics Roadmap for Europe" are of course the main objective of the project. For them to have any practical impact, three objectives have to be met which means that the roadmap

- has to be widely available,
- must reach and convince all relevant decision makers in Micro- and Nanoelectronics and
- shall become part of the decision process for R&D projects by getting into work plans and calls for those projects.

1.4   Dissemination Audience

The targeted audience for the NEREID dissemination will be of various kinds and will include:

- Industries (large, medium and small enterprises) related to the fields of the project;
- Scientific groups in universities and research institutes working in the fields of micro- and Nanoelectronics, including PhD students and early-stage researchers;
- National, Regional and European planners, policy makers and funding agencies;
- Other European projects and related networks of excellence (H2020, ECSEL, PENTA, ...);
- SINANO Institute (It gathers 23 European universities and research centres from 12 European countries forming a distributed Centre of Excellence in the Nanoelectronic field.)
- International research societies and associations
- National and international media (scientific and non-scientific);
- General public

A tight link, insured by the participation of AENEAS in the project, will be established with the community in charge of preparing the Work Programme of the ECSEL JU, in order to guarantee the continuity of the R&D&I chain in Nanoelectronics across all TRLs. Other initiatives will target the Commission bodies involved in the definition of the Work Programme of Horizon2020, in order to make them fully aware of the priorities for research.

1.5   Dissemination Basis

The project will rely on the already existing results achieved by other European and International research and innovation activities, in which the partners have taken part and are still playing a role:

- For the identification of main applications, the High Level Group on Key Enabling Technologies, the Electronics Leaders Group, the preparation of Multiannual Research and Innovation work program of ECSEL and CATRENE/PENTA;
- The Strategic Research Agendas of ETP's related to Micro- and Nano-electronics, like ENIAC, ARTEMIS, PHOTONICS21.
- The preparation activity of the "Guardian Angels" proposal, which identified the main challenges and critical technologies for the creation of intelligent, autonomous electronic system for personal assistance to people.

- The report on application-based requirements and infrastructure needs for European research in Nanoelectronics released by ENI2, an open initiative that was created with the objective to bridge the gap between long term academic research and industrial development, and associates European Universities, Research Centres and industrial researchers that are active in the field of Nanoelectronics.
- The final report of the NANOTEC initiative, funded by a Support Action in FP7 that investigated emerging technologies for Beyond CMOS with special attention to integration and design aspects.
- The cooperation with NANOFUTURES and Value4Nano Coordination and Support Actions.
- The Sinano Institute vision covering different time horizons (short, medium and long terms).
- For international research activities, the involvement in the ITRS/IRDS and INC organizations, and in the technical committees of the most important conferences on the field.
- For relationships to other regions, the participation in bilateral events on Nanoelectronics organized by the European Commission with other regions (Korea, Taiwan, ...)
- The tight relationship with the Eureka Nanoelectronics Cluster and with the ETP Nanoelectronics AENEAS, in addition to the involvement in the organizing committees of European and International conferences and workshops will also be used for the dissemination of the results and their implementation into European R&D&I Programmes.

A proper dissemination of results will take place through the close relationship of the project with the leading European organizations in the field of Micro- and Nanoelectronics, and sanity checks are foreseen during the project with the users' world.

1.6 Dissemination Actions/Tools

To bring the NEREID roadmap to the attention of decision makers in Micro- and Nanoelectronics and to make it widely available, NEREID foresees dedicated dissemination actions/tools:

- **Website**:
  A regularly updated dedicated public web portal, where NEREID results will be available;
- **Public Relations and Press work:**
  PR (i.e. mailings, press, …) to bring NEREID ideas and news to the targeted audience;
- **Publications:**
  Contributions to other national and international workshops and conferences, peer-reviewed scientific and technical Journals and general publications;
- **Dissemination Material**
  o Production and distribution of leaflet(s) / poster(s) introducing NEREID and its results
  o Multimedia (i.e. videos) for information purposes;
  o Prepare electronic and paper version (also downloadable) of the roadmap;

- **Events**
  - o Organize NEREID side events and presentation at major European ICT conferences
  - o Presentation of NEREID results to dedicated organizations, expert groups and networks (public and private)
  - o Participation of NEREID representatives in international meetings for developing collaborations with Countries outside EU very active in the field of Nanoelectronics
  - o Organize at least one dissemination Workshop related to one major ICT event in Europe;

1.6.1 Website

A website (www.nereid-h2020.eu) has been set up and is updated regularly providing different communication functions. The website will be used as external (open access) and internal (password-protected) communication tool as described in deliverable 7.1. It will be maintained even after the end of the project, for future roadmap activities. Several indicators will check the efficiency of the webpage: number of hits, visits and downloads.

The open-access part of the Action website will contain information on NEREID for the general public. This comprises general information on NEREID and its recent results, information on NEREID General and Domain Workshops, events related to NEREID, publications and links to the participating institutions. The password-protected part of the NEREID website will be a fundamental communication and data management tool for the project members as described in section 2 of this report.

It has to be mentioned, that a NEREID logo has been created to transport the corporate identity of NEREID. It is the result of a collaborative brainstorming before and during the kick-off meeting, where creative partners proposed drafts that would have a pleasant look with addition of some wafers in the final version to strengthen the link with the NEREID field.

1.6.2 Public Relations and Press Work

To bring NEREID ideas and news to the targeted audience and to spread to the general public the existence of this project, its goals and achievements already two press releases have been written and distributed and further ones will be written regularly. Most partners have submitted and will submit the press releases to a local, national media and have included and will include a link to it on their websites.

Schedule: It is planned to release at least one press release per general or domain workshop if publishable content is carried out from that event. Additionally once publishable result (i.e. a roadmap release) is available, a press release will be distributed.

While it will be checked, if an email distribution of the press releases and maybe a periodic newsletter is sensible and useful to support the distribution of NEREID ideas/results, social networks will not be incorporated for distribution, as it is assumed that those media are not very much used in the context of NEREID.

1.6.3 Publications

The dissemination towards researchers external to the project will be made by presentations at events (s. 1.6.5), by articles, which will be published in peer-reviewed scientific and technical Journals, and by members contributions to other national and international workshops and conferences in fields related to the NEREID activities. All publications (including papers, booth appearance, posters, oral presentations, etc.) will be indicated in advance to be promoted on the NEREID website and will be reported shortly afterwards. They appear in the regular reporting and will be monitored on the website.

Schedule: These publications will not be planned, as the preparation of a publication is in responsibility of the project partners and will be taken in case of an appropriate occasion.

1.6.4 Dissemination Material

To have a kind of 'presentation project card' for different forums like international conferences, workshops or technological platform meetings a promotional leaflet and a poster with general information of the project will be prepared. Updates of those will be carried out on demand (at least once a year) comprising the latest NEREID results. The leaflets will also be available on the website for download.

As Multimedia's impact is steadily growing these days, NEREID dissemination foresees also the creation and presentation of videos.

Schedule: A general leaflet on NEREID and a corresponding poster will be available after M10 in Mid September. Further leaflets will be produced if necessary for a better dissemination. As a first step in multimedia an eight-minute movie is being developed to present the main highlights of the 1st General Workshop (Grenoble, April 13-13th 2016) and interaction between the NEREID partners, application and technical experts. The trailer will soon be proposed on https://www.nereid-h2020.eu.

1.6.5 Events

One of NEREID's most important dissemination method is the public and private presentation at dedicated events related to Micro- and Nanoelectronics. In order not to reinvent the wheel, NEREID will benefit from established events and therefore will use those for the dissemination of the roadmap and for the collection of inputs. Among the events targeted are:
- The European Nanoelectronics Forum (ENF)
- The European NanoForum
- The ESSDERC/ESSCIRC Conference

- The EUROSOI-ULIS Conference
- The bi-annual ICT Conference organized by DG Connect
- The DATE Conference
- The SEMICON Conference
- European conferences on Nanoelectronics organized by Intel
- Nanoelectronics, Applications, Design & Technology Conference (NADTC)

Other events will be planned at national level (i.e. edaWorkshop). Not only at conferences and workshops the presence of speaking project partners is a very important activity to promote NEREID ideas inside and outside the project. It is encouraged to all partners. Moreover, as the roadmap will be based on the contributions of a wide base of experts coming from different industrial and academic institutions, this will also contribute to a wide dissemination of results. For making the NEREID roadmap part of the decision process for research and development projects NEREID foresees:

- Roadmap presentation to the main research and industry organizations supporting the ECSEL JU: AENEAS, EPOSS, ARTEMIS-IA, and to the EUREKA cluster PENTA;
- Roadmap presentation to DG Connect and DG Research;
- Through WP8 and the Advisory Group, presentations to the industrial associations in the sector like ESIA and SEMI, at the ITRS/IRDS meetings and towards other international associations, with the purpose to achieve synchronization with worldwide roadmaps;
- Deployment of the roadmap in the European R&D&I strategy through ENI2 and the direct involvement of partners and associated experts in the Work Programme definition for H2020, the ECSEL JU and the EUREKA programs.

Schedule: During the first year of the project, apart from the kick-off presentation of the project during European Nanoelectronics Forum 2015 in Berlin, no public appearance is intended. Until the second General Workshop, which takes place in Athens in April 2017 during the same week as the EUROSOI-ULIS Conference, the current scope foresees the following public conference participations of NEREID:

- EU-Korea Nanotechnlgy Workshop in Seoul, on October 6th, 2016
  The NEREID coordinator will give a presentation on NEREID, its goals and work
- European Nanoelectronics Forum (ENF)
  NEREID intends to be present with a session at the European Nanoelectronics Forum, which will take place in Rome on November 23-24, 2016
- The DATE Conference
  NEREID will submit a proposal for a special session at the Design Automation and Test
  Conference (DATE) which will take place in Lausanne on March 27-31, 2017

Further attendances will be planned during M12.

1.7 Role of Partners in Dissemination

The coordination of the dissemination belongs to ECN, which is also the leader of the corresponding work package 7 and its tasks (7.1 and 7.2). ECN is also responsible for the definition of dissemination program, the design and set-up of the web portal as well as for the organization of dissemination events and the preparation of corresponding materials.

ICN2 gives support to the definition of dissemination program and enforces the dissemination towards scientific community in Excellent Science. Grenoble INP, SINANO and AENEAS, who are the administrative, technical and industrials leaders of the project, will disseminate the objectives and results of NEREID in the framework of European and International events. AENEAS will also give support to dissemination events and serves as an interface to industrial research organizations and programs. All other partners will contribute to the dissemination by compiling publishable technical content and by bringing the NEREID ideas and results to people.

1.8 Schedule of Dissemination Actions

A schedule of dissemination actions is of high importance to plan a fruitful dissemination and to make it transparent to all partners. But before the first results have met the foreseen agenda, a detailed planning of dissemination activities does not make sense and this is not yet part of this deliverable. To complete this dissemination plan the needed schedule of dissemination actions will be redelivered in M11 in Mid October 2016.

2. Communication and Data Management

2.1 Introduction

As he NEREID project's main purpose is to disseminate a commonly defined roadmap, communication is a very essential part of the project. It comprises not only the project's communication to people outside of the project (which is in fact the dissemination described above) but also the communication inside the project and its data management. It follows certain rules and regularities and is carried out actively by all partners, using different means of communication.

2.2 Communication Tools and Rules

The NEREID communication tools comprise meetings, conference and phone calls, email and the website.

2.2.1 Meetings

NEREID meetings are held regularly during the year. NEREID foresees to hold one initial (kick-off) workshop, a yearly General Workshop, project reviews, the dissemination activities described above and several Domain and cross-Domain Workshops. Thus, NEREID offers good opportunities for regular meetings of the steering committee (SC), in addition to frequent conference calls (s. 2.2.2), and in and

between the work packages. All SC meetings will be initiated and organized by the project coordinator INP while work package meetings belong to the responsibility of the work package and task leaders.

2.2.2 Conference and Phone Calls

Conference calls are intended to bridge the gaps between meetings and will be held regularly between them. The steering committee, for example, gave itself the rule to communicate at least every two month, either in a meeting or in a conference call. Normal phone calls of course will be used intensively once communication is necessary.

2.2.3 Email communication

Email communication is of high importance for quick offline information exchange with the additional advantage, that the communication can be stored easily. Together with a set up of email reflectors it also offers the opportunity to communicate to and inside several distinguished groups. In NEREID the following Email reflectors have been set up:

- General Assembly
- Steering Committee
- Advisory Board
- Work packages
- Administrative/financial/legal representatives
- Industrial co-leaders
- Application experts

2.2.4 Website Communication and Data Management

While the public (open access) part of the web platform is dedicated to the communication of NEREID to the public, the password-protected intranet will be used for internal communication. It will serve as a communication centre with full document management facilities and flexible role-based access rights. It can be used as internal discussion forum, for document exchange, minutes of the meetings, draft of roadmaps and in general storage of work in progress. The workspace will offer the possibility of shared editing of working documents (enabling off—line shared editing). It will contain all the information on the project network including databases, working documents and published articles, and will serve as an internal forum for sharing ideas, data, questions and answers.

4. Conclusion

This report described the current dissemination, communication and data management planning of NEREID. It considers the project's main purpose to bring the "NanoElectronics Roadmap for Europe" to a broad audience and in particular, to all relevant decision makers engaged in Micro- and Nanoelectronics coming from industry and academia as well as to policy makers and public authorities especially at European level. Finally, this effort will lead to introduce the roadmap into the decision process for R&D projects by bringing its content into work plans and calls for those projects.