



The Joint Programme on Nuclear Materials of the European Energy Research Alliance

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JP NM subprogramme coordinators

1- CEA, 2- CNRS

www.eera-set.eu



EERA is an official part of the EU SET-Plan.

<http://setis.ec.europa.eu/>

www.eera-jpnm.eu

Improve **safety & sustainability** of Nuclear Energy with a focus on **materials aspects**

Pursue **better knowledge of materials behaviour** in operation:

- achieve predictive capability (radiation & temperature effects, compatibility with coolants ...)
- select most suited materials for Gen IV systems
- support definition of safe design rules

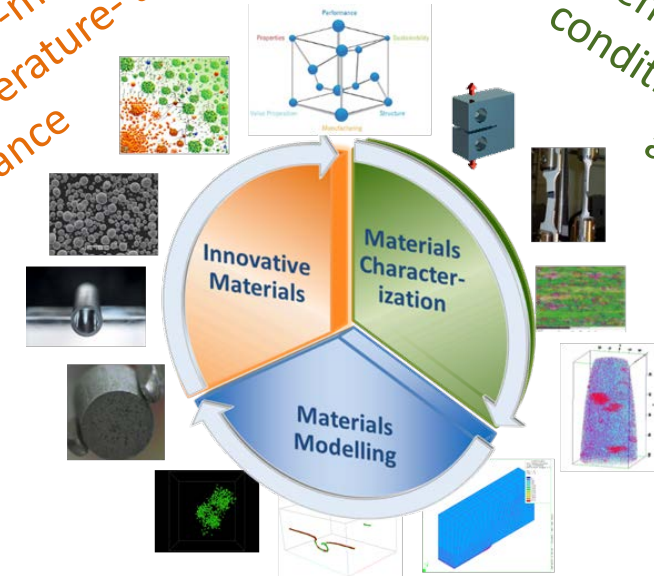
Develop **innovative materials for industrial use** with superior capabilities:

- resistant to high temperature and irradiation
- resistant to aggressive environments

Three grand challenges (JPNM vision paper*)

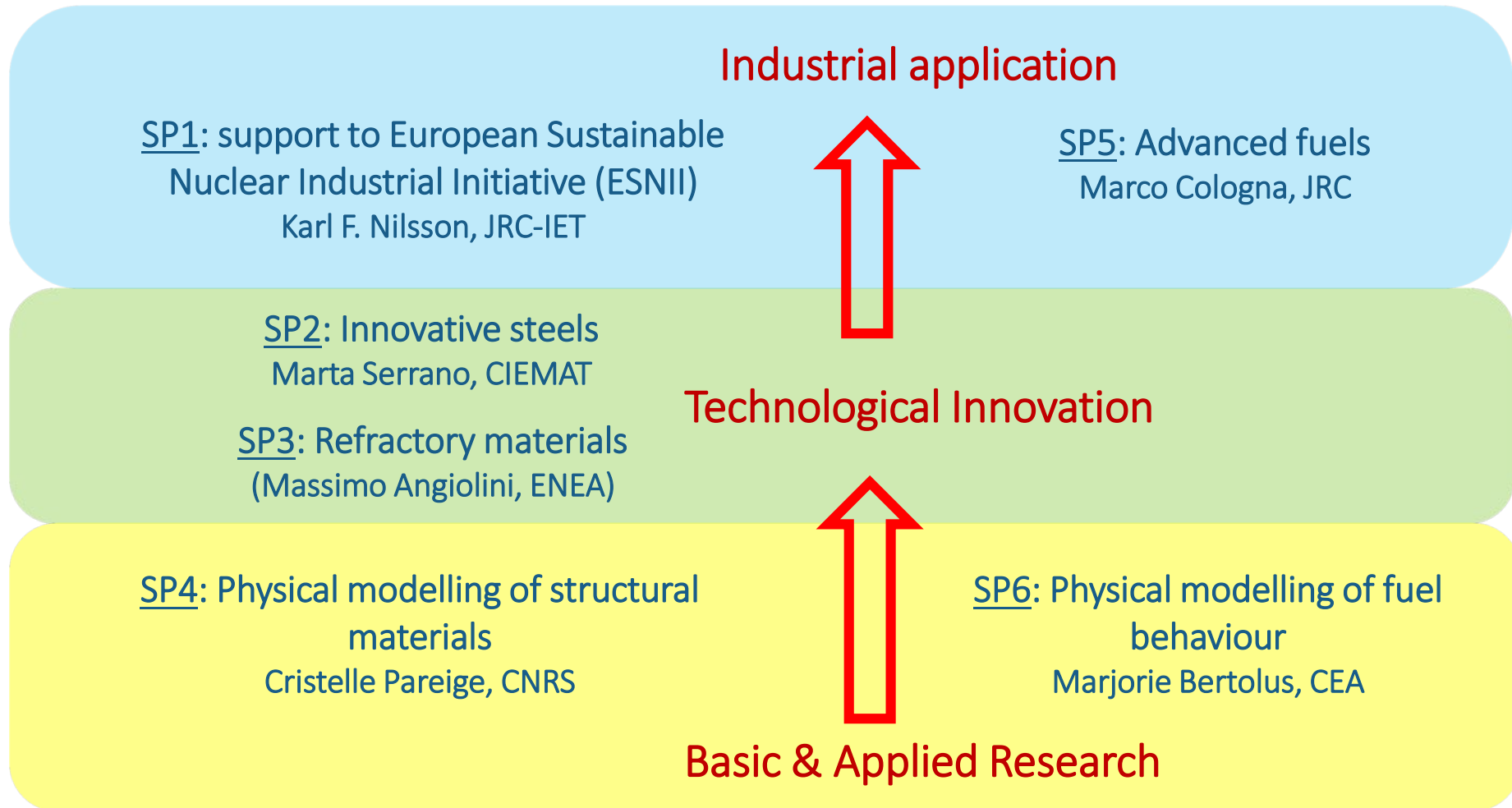
Development of **new materials** of nuclear-relevance, with **superior** thermo-mechanical **properties**: radiation-, temperature- and corrosion-resistance

Elaboration of **design rules and procedures** for assessment and testing of the materials envisaged at the expected operating conditions (high T, prolonged irradiation, aggressive environment).



Development of **physical models** coupled to advanced **microstructural characterization** to achieve high-level understanding and predictive capability

* www.eera-jpnm.eu → About Us → Downloads
(or directly www.eera-jpnm.eu/?q=jpnm&sq=nboard)



Coordinator: Lorenzo Malerba, CIEMAT
Deputy coordinator: Angelika Bohnstedt, KIT
Cross-cutting issues: Jana Kalivodová, CVR

These people form the JPNM management board

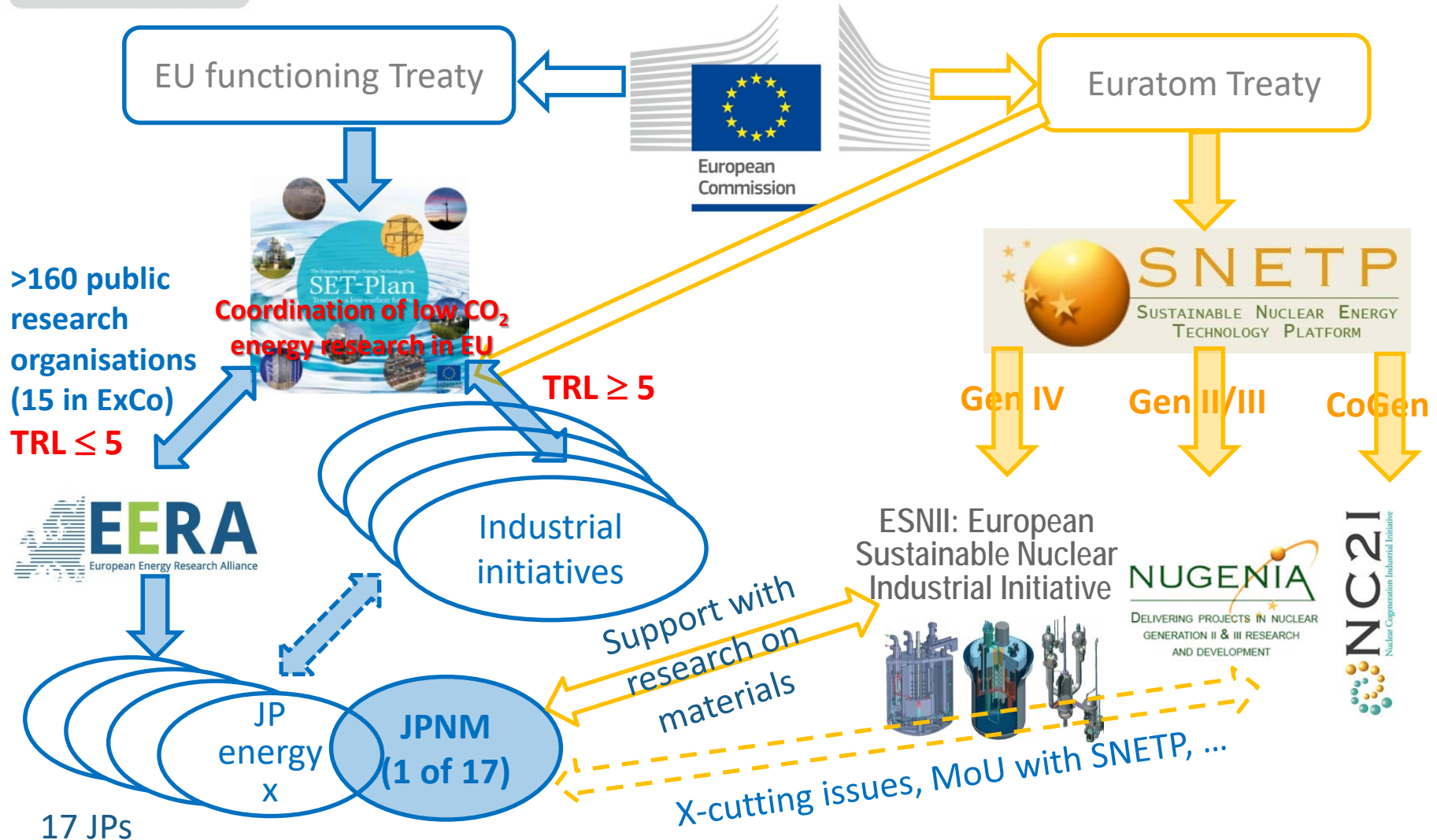
JPNM members



- 55 Members
- 17 full members
- 38 Associates
- 18 Countries + EU (JRC)

Representatives of the full members form the JPNM steering committee

JPNM in the complex landscape of energy platforms in Europe



SET-plan pushes to create a formal link between EERA JPs and EII/ETP → ETIP

- Created in 2010
- 2010-2015 : First phase of JPNM : creation and consolidation
 - DoW written
 - Fuel research added in 2012
- 2016-2020: Second phase: Actions and leadership
 - Review of JPNM: strengths and weaknesses
 - MoUs with SNETP and OECDE/NEA
 - PPP calls in 2015 and 2018
 - Active participation in work of TWG10 of SET-Plan

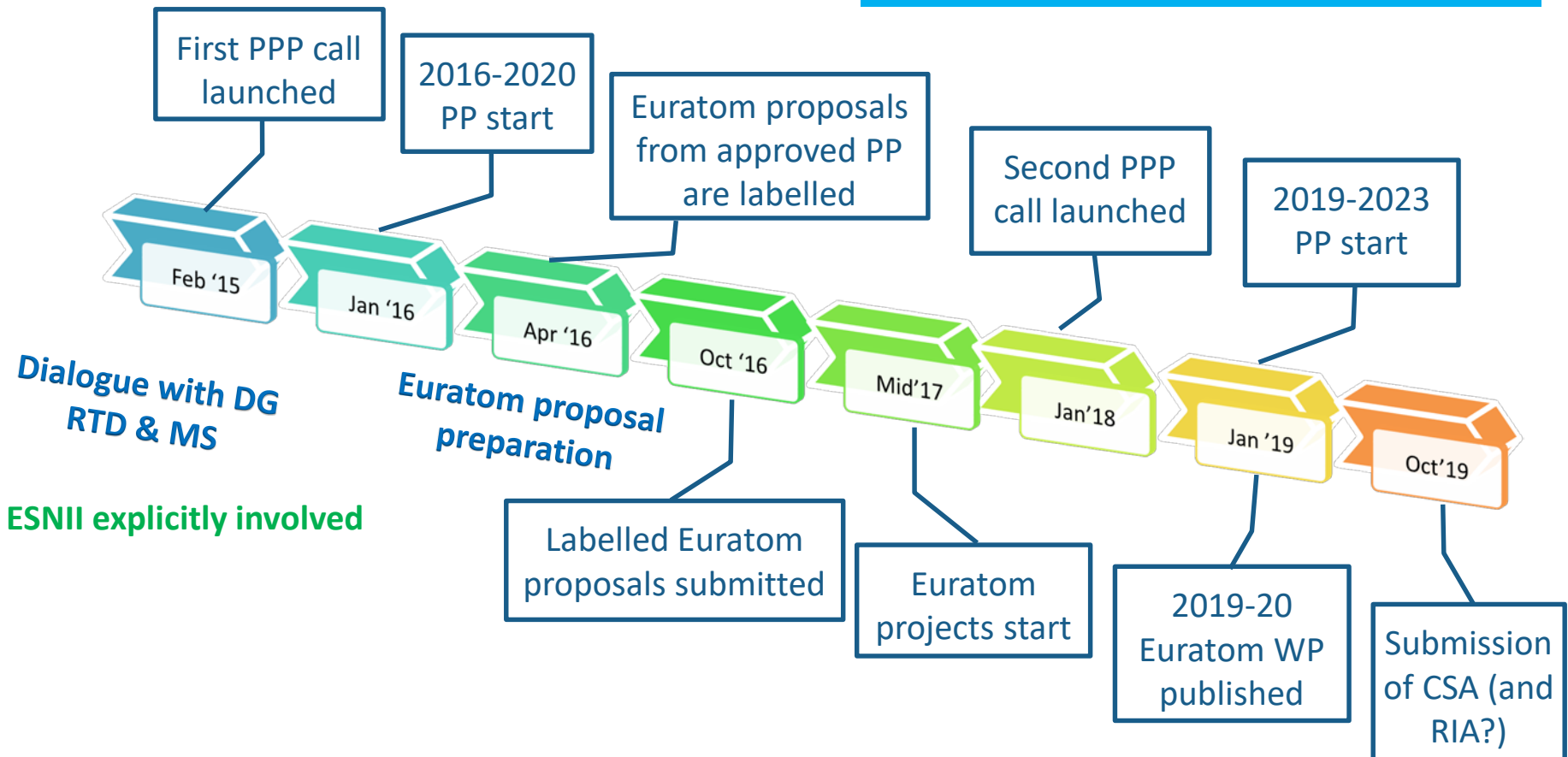
Successes since 2016

- Specific section on nuclear materials + section on X-cutting with fusion in 2016-2017 Work Programme including fuel materials
- 3 labelled proposals accepted (100%) : 12 M€ EC contribution
- Section of 2019-2020 call “Towards joint European effort in area of nuclear materials”. Call for a CSA to prepare a possible EJP

WIDE CONSULTATION

JOINT PROGRAMMING

PRIORITISATION & IMPLEMENTATION



Description of Work

Collection of **all activities of relevance** over a period of five years in each SP, leading to results that belong to the JPNM, i.e. **shared results**: from Euratom funded projects to national programmes

Vision Paper & Strategic Research Agenda

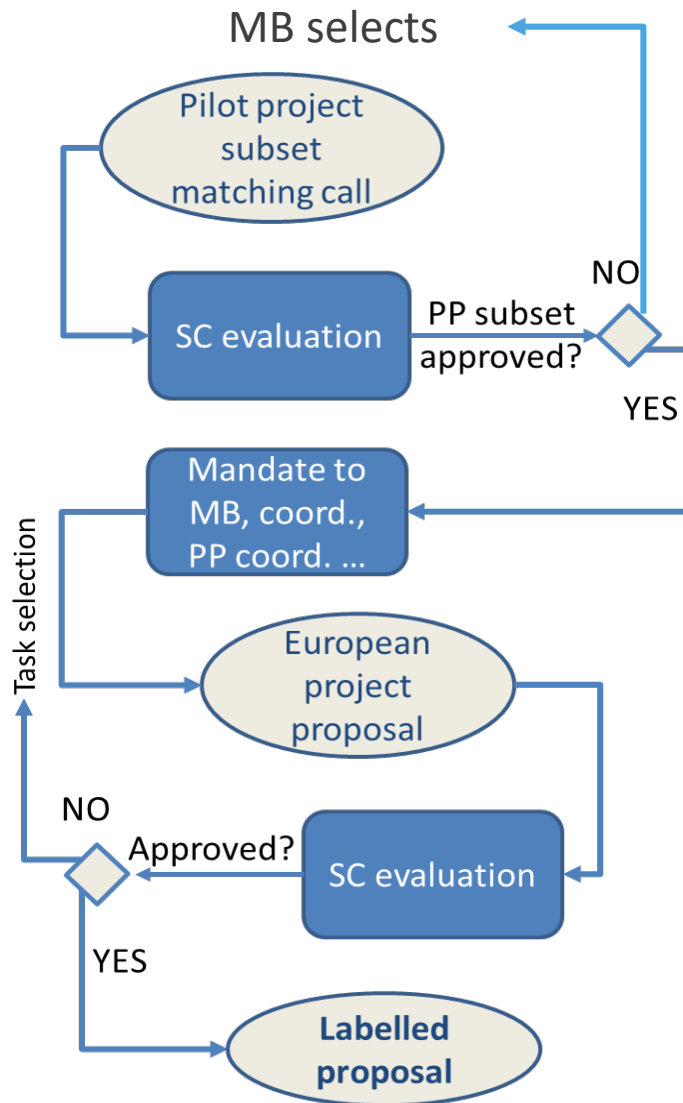
Provide the **position of the JPNM** on the energy and nuclear energy arena, **the challenges and the pathway** to address them. Vision Paper available at JPNM website. First version of roadmap published as deliverable of MATISSE project in December 2017. Final version awaiting validation of JPNM SC

Pilot Projects (PP)

Small **projects** (~2-3 M€) **focused on precise topics** included in DoW that result from **convergence** of plans of a few labs from different MS. Typical duration: 3-4 years.

Pilot projects are the main instrument used by the JPNM to align national programmes in EERA

Labelling procedure



EERA label given by individual JP

The labelled proposals to Euratom are advertised to the EC and to the reviewers with the sentence:

“This project proposal aligns major research performing organisations in the framework of EERA and the SET-PLAN”

In the 2016-2017 call, the three proposals labelled by JPNM were accepted

BUT JPNM was mentioned explicitly in NFRP5 & 13, in which these proposals were submitted

The MB strives to seek and enhance funding opportunities for the JPNM portfolio constituted by the PP, with actions that include

- Identification of X-cutting issues
 - With other nuclear platforms (NUGENIA, NC2I mainly)
 - Signature of MoU with SNETP is part of this effort
 - Other energy technologies within EERA, for joint actions (CSP, AMPEA...)
- Pro-active initiative with DG RTD
 - **Meeting with DG RTD & MS in 2017** to show progress in integration and negotiate instruments
- Use of other instruments
 - Eg coal & steels programme

- To leverage funding from EC and MS, JPNM members work all **together** to build its credibility

Credibility means

- Show alignment of national programmes and integration
 - SRA, Pilot Projects, research portfolio, DoW...
- Show link with industrial initiatives
 - Interaction with ESNII, connection with Nugenia & NC2I, MoU with SNETP
- Show that institutional funding is being used
- Show that the JP is able to deliver tangible results
 - Launch the PPs, perform work, advertise the results
- Ensure continuity between projects: collaborations, results

**Thank you for
your attention**

