

# **Bridging industry with academia in the dynamic domain of nanoscience and nanotechnology:**

## lessons learned and future perspectives from NFFA-Europe

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# What is NFFA-Europe

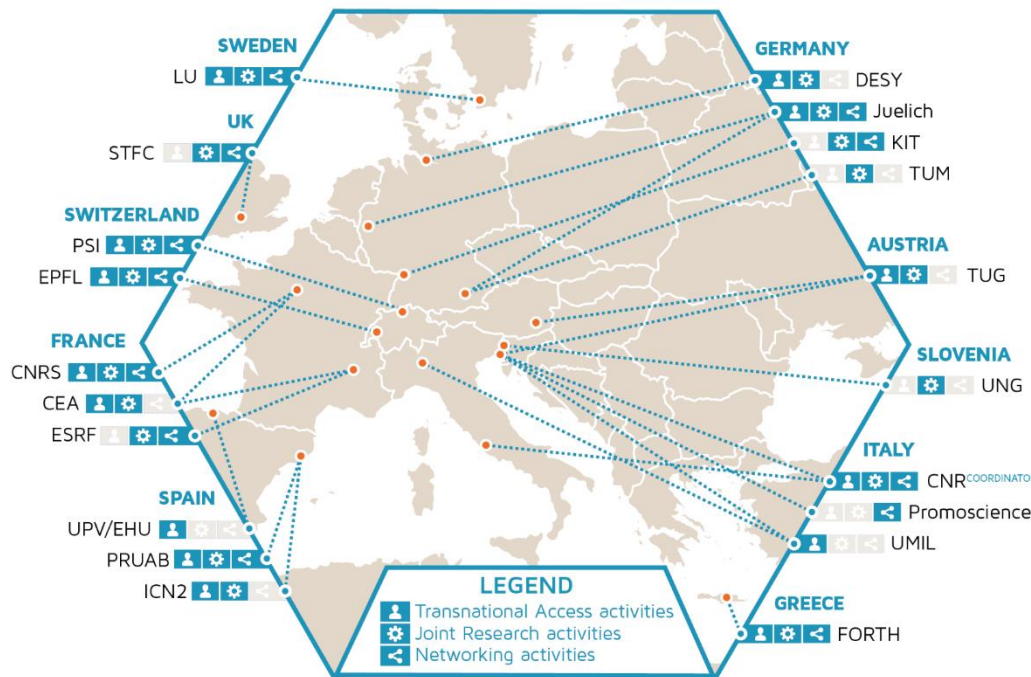
A distributed research infrastructure for  
nanoscience and nanotechnology

[nffa.eu](http://nffa.eu)

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- NFFA-Europe is a distributed research infrastructure serving the community of nanoscience and nanotechnology.
  - The NFFA-Europe initiative has been financed within a call INFRAIA-1-2014-2015 – “Integrating and opening existing national and regional research infrastructures of European interest”, with the aim to enhance European competitiveness in nanoscience research and innovation.

# The NFFA-Europe consortium

20 partners leaders in nanoscience/nanotechnology of which 10 nanofoundries co-located with Analytical Large Scale facilities



## Project Information

NFFA-Europe

Grant agreement ID: 654360

[Project website](#)

Status

Ongoing project

Start date

1 September 2015

End date

28 February 2021

Funded under

H2020-EU.1.4.1.2.

Overall budget

€ 11 759 061

EU contribution

€ 9 994 861

Coordinated by

CONSIGLIO NAZIONALE DELLE RICERCHE





# The NFFA-Europe key activities

## TA

### Transnational Access activities

Multidisciplinary research at the nanoscale performed at nano-laboratories and ALSFs

Integration of theory & numerical analysis with advanced characterization

## JRA

### Joint Research activities

Methods & tools at the frontier in nanoscience research

Improved infrastructures for academic & industrial projects

## NA

### Networking activities

Interface for different user communities

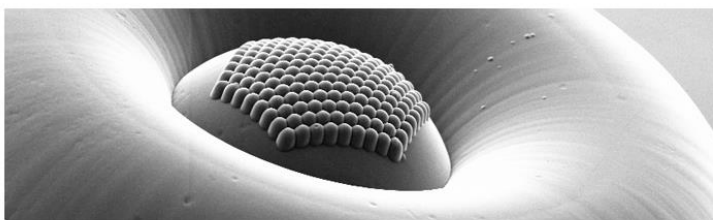
Industrial exploitation of experimental data

# An Open Access

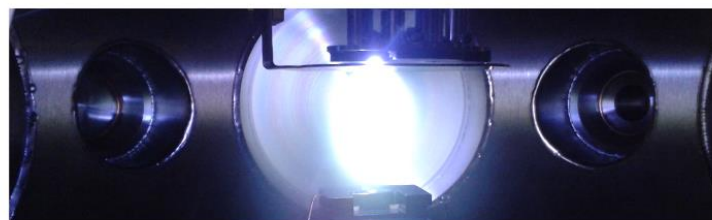
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Regulated access to state of the art nanoscience facilities

Integrated with the large scale infrastructures for fine analysis



**LITHOGRAPHY &  
PATTERNING**



**GROWTH &  
SYNTHESIS**



**THEORY &  
SIMULATION**



**CHARACTERISATION**



# How NFFA-Europe engage with industry?

Lessons learned



# How NFFA do (can) engage with industry?

- **Industry as a user** (client) -> shorter term
  - Service mode access
- **Industry as a partner** -> longer term
  - Development of tailored solution
  - Consultancy (knowledge transfer)
- **Technology transfer**
  - Co-development of useful product
  - Licensing (with or w/o patents)
  - Commercialisation
- **Industry as a supplier**
  - Pre-competitive procurement





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**KPI:Target: 5% of TA access related with industry < Result: 10%**

- Marketing plan by sector
- Intense (compatible with budget) marketing campaign (+EARIV)
- Case studies
- Support via the TLnet (ILnet)
- Simplified request for solutions (the help button)
- Feasibility access and 1 facility access for SME
- Commercial confidential access



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## **KPI: Non existing**

- Patent attorney support



# Lessons learned

- **Industry as a user:**
  - Complete an appropriate assessment of the demand and the offer and design a marketing campaign with proper resources (today 2% of overall NFFA budget)
  - Have a proper ILNet that proactively looks for industrial engagement (i.e. allocated resources/missions)
  - Put in place new access mechanisms adapted to industry
    - TNA for SME (Calipso+ like)
    - A *buy or publish* scheme (like ISIS)
- **Technology transfer**
  - Be more systematic in the IP generation assessment and valorization process
- **In general**
  - fix more ambitious KPIs based on objective market analysis/roadmap
  - consider the possibility to have a distinct WP for engaging with industry
  - increase the overall budget to 10%
  - Attack the question of data management/policy for industrial users
  - PCP associated with (selected) JRAs?





# Delivering a position paper

Bridging industry with academia in the domain of nanoscience and nanotechnology



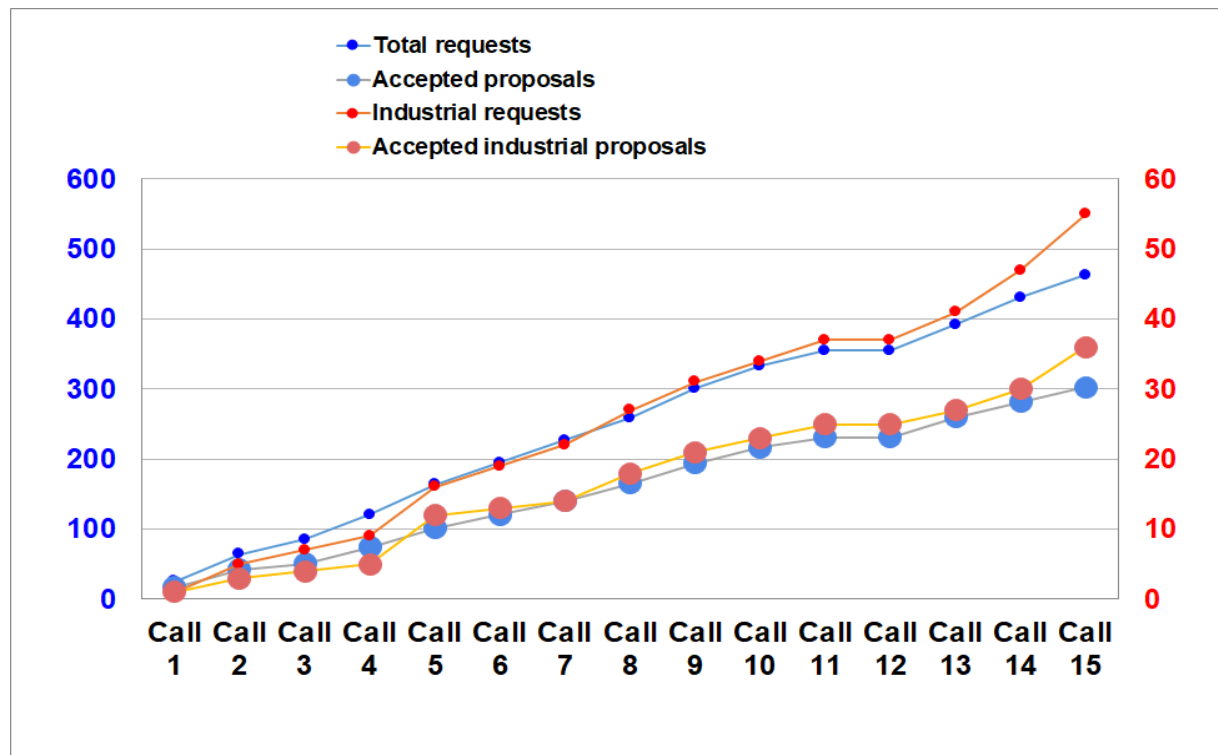
# Main bottlenecks as reported in previous experiences

- **The translational challenge:** technique vs solution.
- **The need of specific resources to work with industry:** the rise of the ICOs.
- **Need of building awareness and provide training and education:** inform, promote, train (the 7 times rule).
- **Statutes and working practices designed for academics:** confidential commercial access vs academic peer review.
- **The need for industry tailored equipment, standards and certification:** repeatability vs proof of principle.
- **Develop trust and adapt the approach to the industrial context:** in the mind of an ICO, it does not exist such a thing as what we call: "industry".

# 10 suggestions matured in the context of the NFFA experience

## 1. Effectiveness of the TNA access to support industrial activity in pre-competitive phase

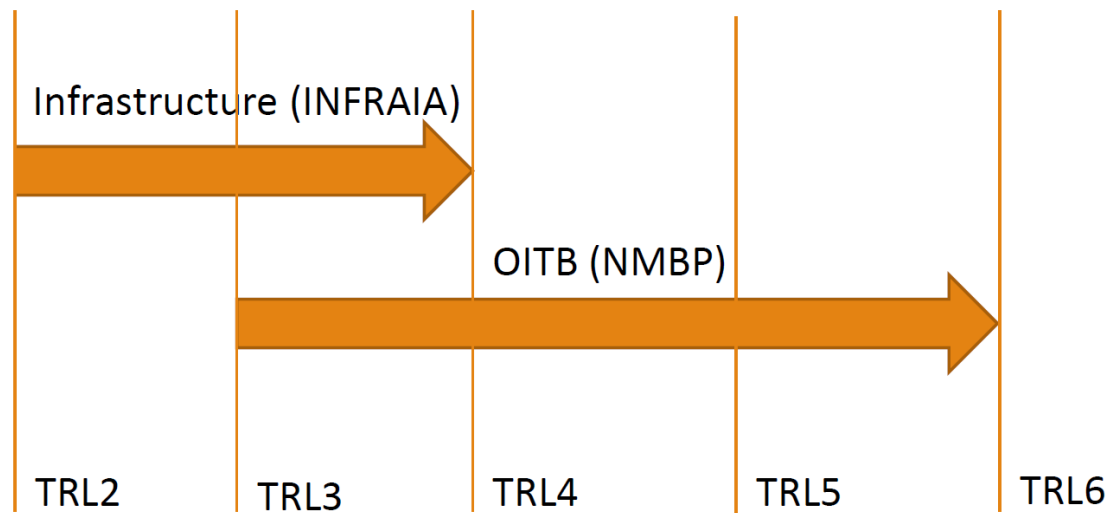
- TNA is a great instrument to contribute to low TRL precompetitive industrial research.



# 10 suggestions matured in the context of the NFFA experience

## 2. Interaction of RI with Open innovation initiatives and technology infrastructures

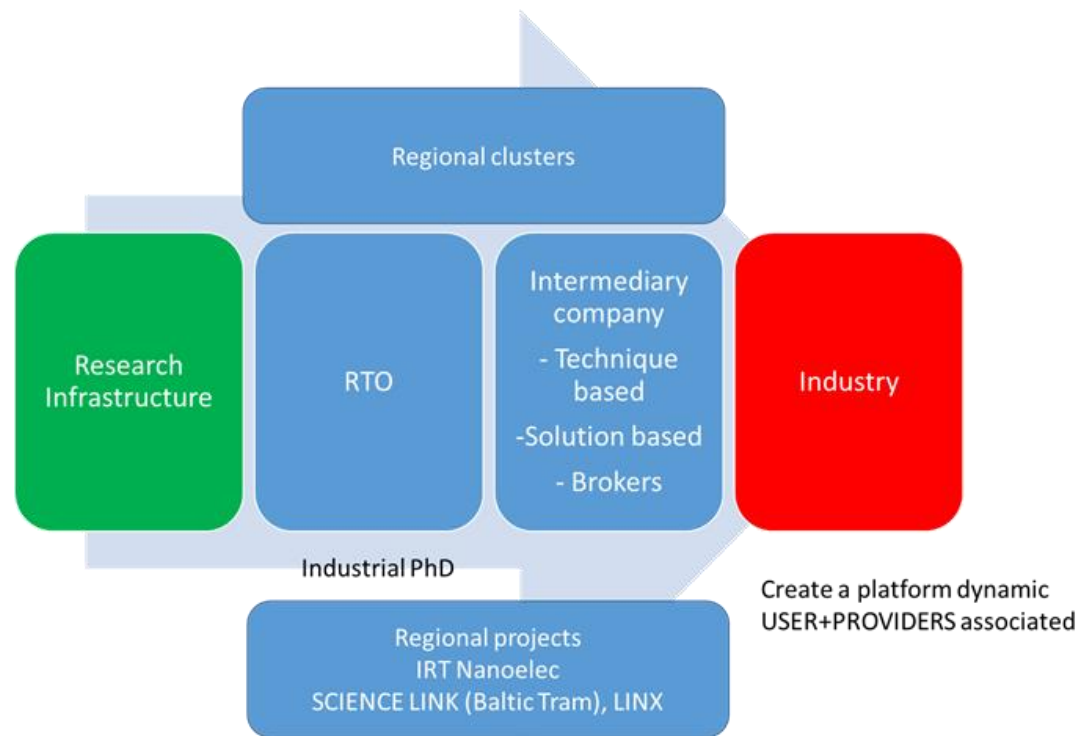
- Open innovation ecosystems are the ground where engagement with industry is originated



# 10 suggestions matured in the context of the NFFA experience

## 3. The translational barrier and the importance of intermediaries

- Find the right partner



# 10 suggestions matured in the context of the NFFA experience

## 4. Adapted branding and new ways to increase awareness

- encourage the right perception in the industrial community and inspire confidence
- Introduce novel ways of collaborating, exploit novel methodologies, inspired to the open innovation centers (co-creation)

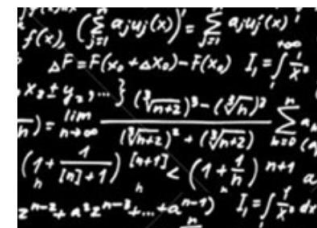
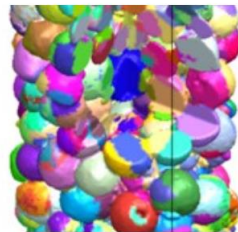
### Scientist view

- Unique large-scale instrument
- State-of-the-art
- Fantastic science!

### Industrial translation:

- Expensive and difficult to use
- Risky
- Fundamental science

Not for me.



# 10 suggestions matured in the context of the NFFA experience

## 5. Training and career design

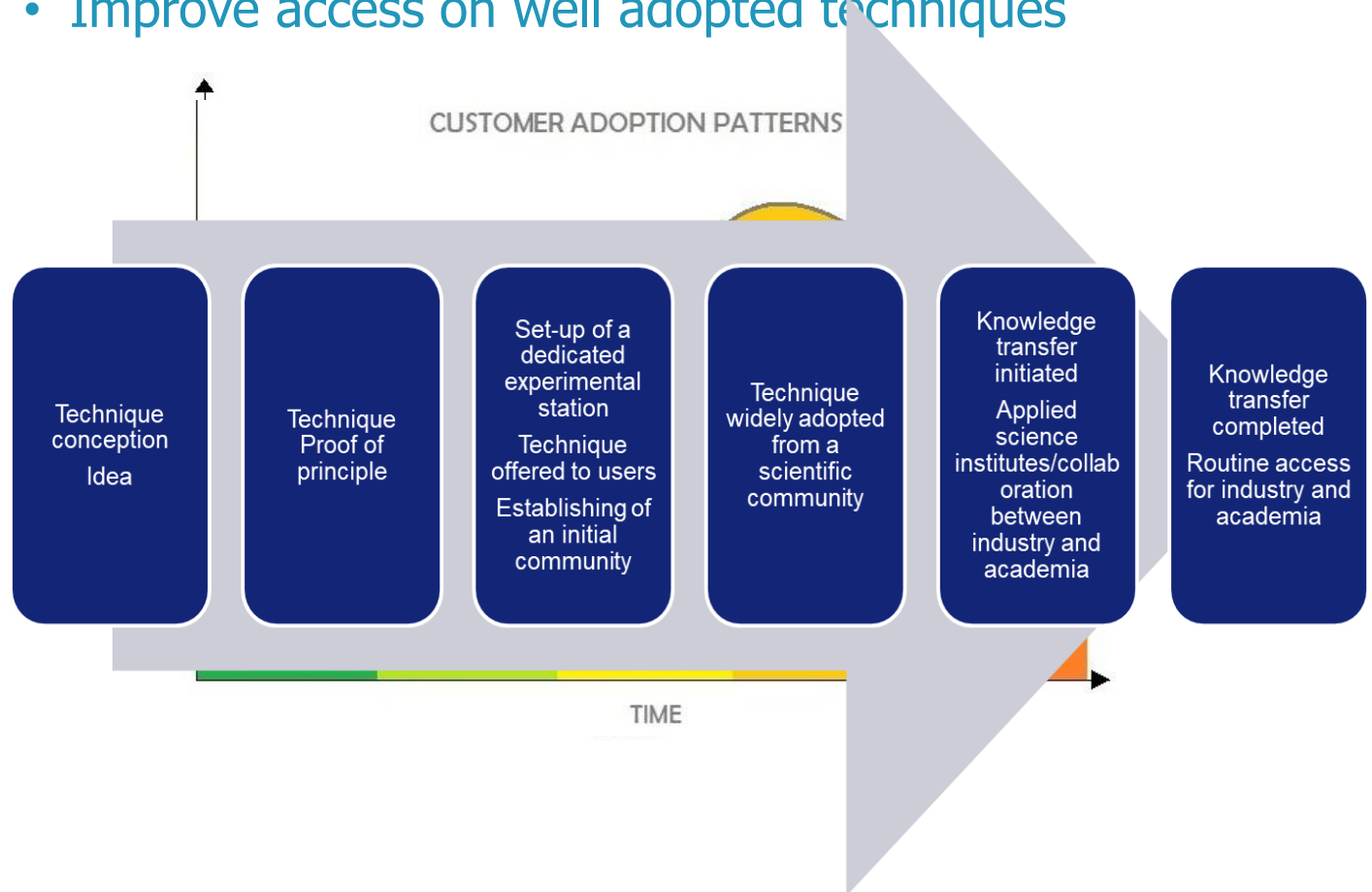
- Integrate some opportunity to educate some open-minded people with a hybrid technical and business double faceted profiles.
- Design career paths which favorise the staff exchange between industry and academia.
- Create some opportunities for co-creation exploiting the novel methodologies made available by the open innovation centers (hackatons, hands-on experiences, etc.).
- Made available some spaces for co-working.



# 10 suggestions matured in the context of the NFFA experience

## 6. Development of novel industry tailored instrumental facilities

- Improve access on well adopted techniques

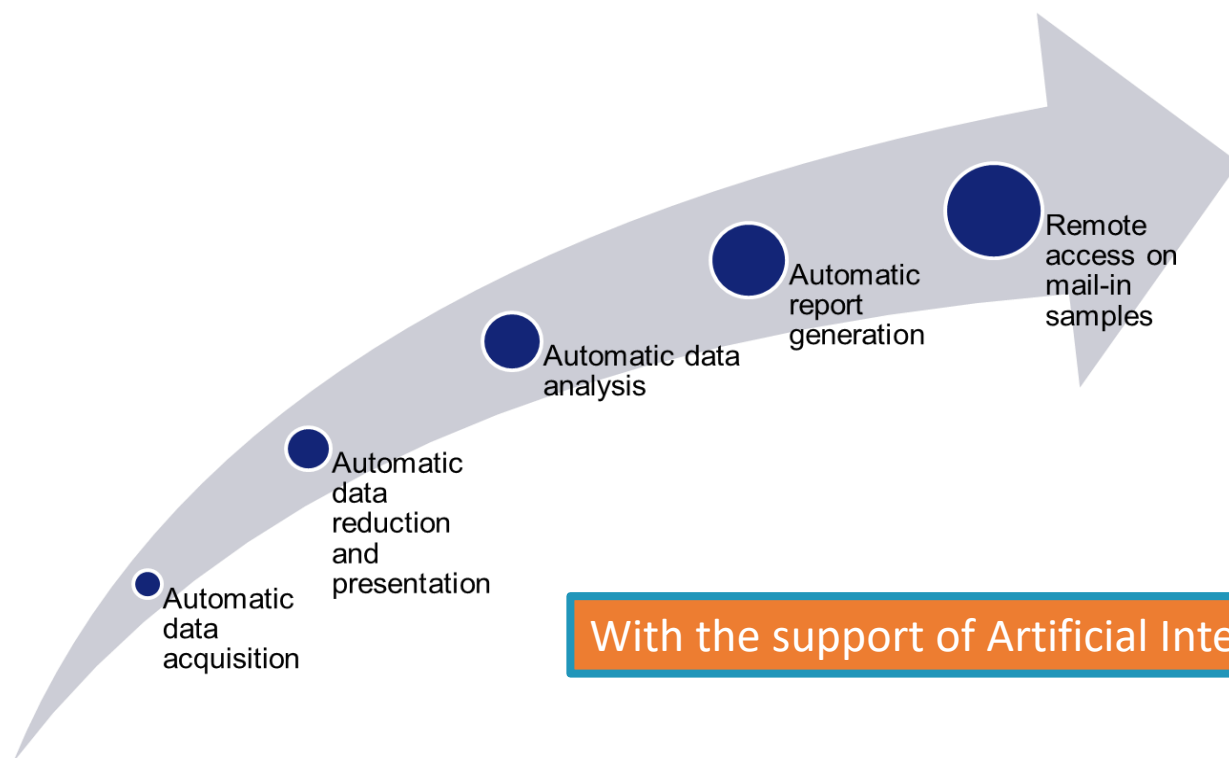




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## 7. Improving the structure of the industrial user community

- Encourage, also at institutional level the structuring of the needs by the industrial community (e.g. with the drafting of common roadmaps)



# 10 suggestions matured in the context of the NFFA experience

- 8. Networking and teaming up between RIs
  - Mutualise the outreach effort toward industry

nffa.eu



European Analytical Research Infrastructures Village



Overview European projects Regional projects Facilities Sectors Mediators Events More

**Research, analysis, innovation.  
For industry, Europe-wide.**

EARIV is a joint initiative led by a set of transnational *Horizon 2020* projects and regional initiatives that promote the opportunities for industry to interact with the European large scale analytical research infrastructures.

EARIV is a network of 8 projects, with 30 ARIs spread across Europe, working together to develop a stronger regional integration with industry.

[Contact us](#) [Download the brochure](#)

European Projects



Regional Projects



# 10 suggestions matured in the context of the NFFA experience

9. Conflicts of interest in the case of distributed RIs
  - In case of potential commercial access, who would deliver the service?
  - Important to integrate in the local innovation ecosystems.



# 10 suggestions matured in the context of the NFFA experience

## 10. Need for a strategic vision and a far sighted "industrial programme"

- Industry engagement means before everything establishing a partnership, understanding and trusting each other
- This would correspond to a long term, visionary strategic, programme and not just to a patchy short-term minded approach.





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