



| The European Synchrotron



Industry Engagement at the European Synchrotron: Challenges and Successes

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THE SYNCHROTRON WITH AN INTERGOVERNMENTAL CONVENTION



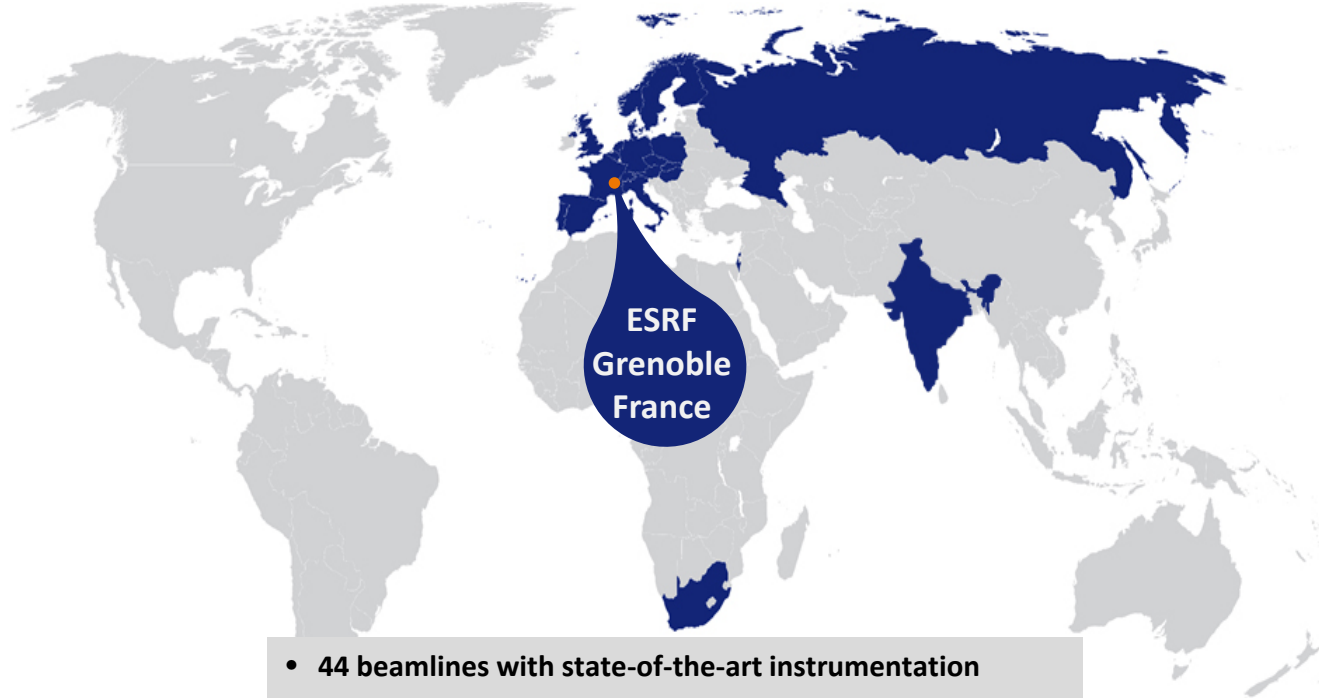
22 PARTNER COUNTRIES

13 Member states:

France	27.5 %
Germany	24.0 %
Italy	13.2 %
United Kingdom	10.5 %
Russia	6.0 %
Benesync	5.8 %
(Belgium, The Netherlands)	
Nordsync	5.0 %
(Denmark, Finland, Norway, Sweden)	
Spain	4.0 %
Switzerland	4.0 %

9 Scientific Associate countries:

Israel	1.5 %
Austria	1.3 %
Centralsync	1.05%
(Czech Republic, Hungary, Slovakia)	
Poland	1.0 %
Portugal	1.0 %
India	0.66 %
South Africa	0.30 %



- 44 beamlines with state-of-the-art instrumentation
- First in scientific output: **2,000 publications/year**
- Leader in number of users: **7,000 user visits/year**, more than 10,000 individual users in the last three years
- **4 Nobel Prizes** amongst users
- Founding Member of the **Grenoble Innovation Campus**

ESRF: MOTIVATED, AMBITIOUS, NEED TO LEARN



WHY DOES THE ESRF WORK WITH INDUSTRY?

- **IMPACT:** Demonstrated use of ESRF facilities, skills and intellectual property
- **CASH:** More resources
- **GOOD SCIENCE:** Challenging, real samples
- **CAREERS:** Wider opportunities for staff

HOW DOES ESRF ENGAGE WITH INDUSTRY?

Feasibility access: “have a go”

CLIENT SERVICES Proprietary, Complex and Mail-in Services

- Generates 1.5M€ annually
- >100 unique clients
- Client owns IP rights
- Costs recovery

TECH TRANSFER Instrumentation

- Licensing: 30 technologies
- In-house manufacturing
- Consultancy
- Generates 0.5M€ annually

PUBLIC BEAM TIME 30% linked to Industry, Must be published

- Universities with industry
- Industry on its own
- Innovation-led long-term proposal

COLLABORATION & GRANTS

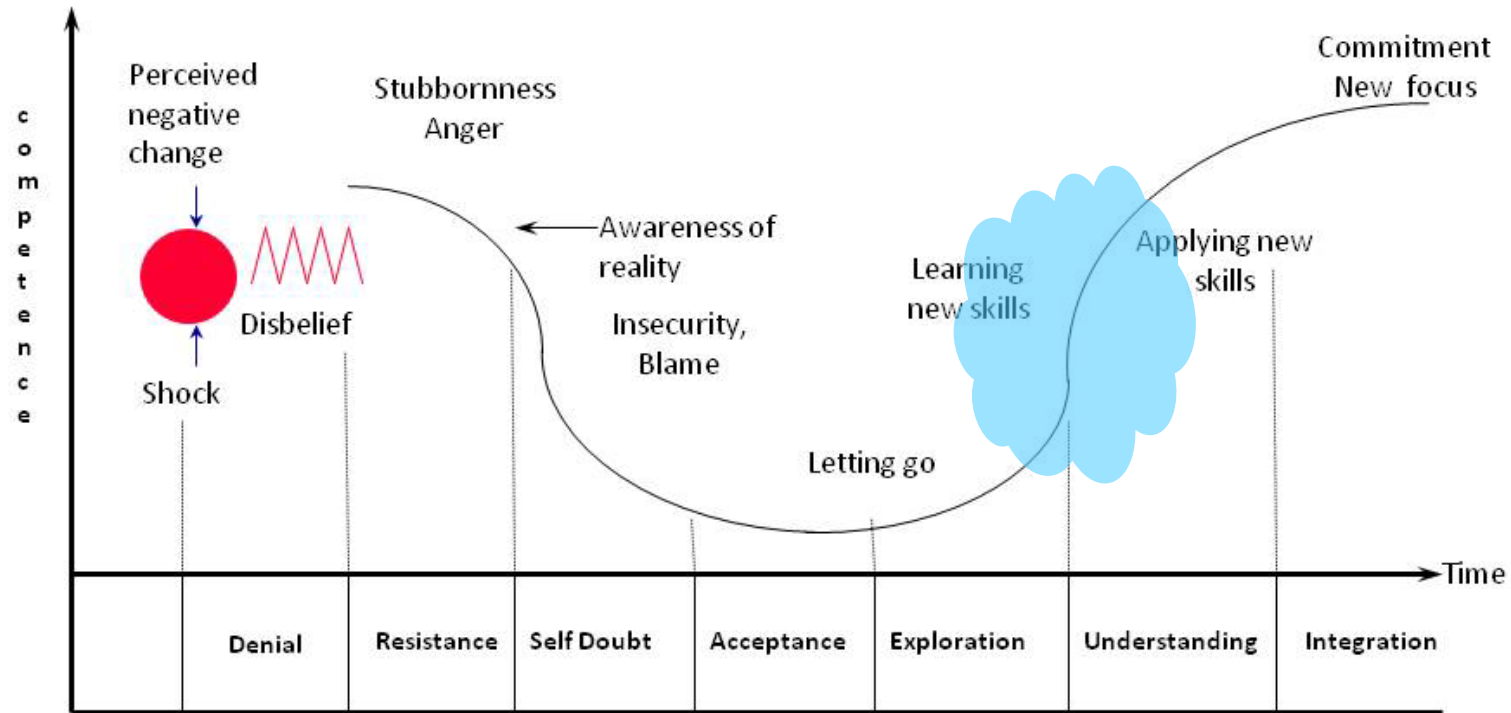
- Industry sponsored staff (post-doc, PhD, trainees...)
- Horizon 2020 + national



Challenge 1

Buy-in of staff

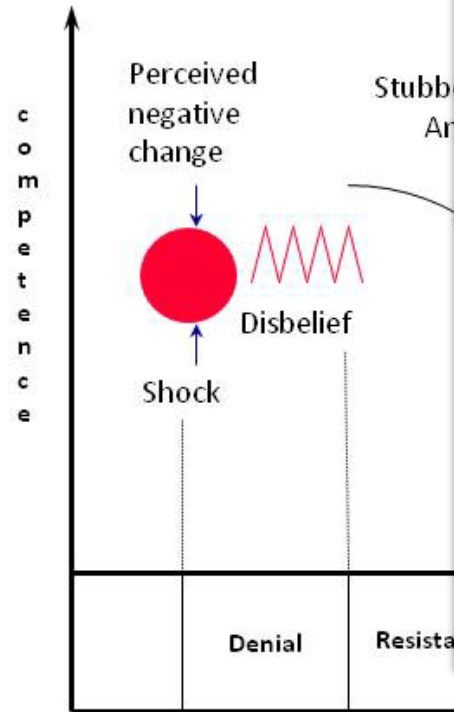
Psychological Reactions to Change



Adapted from the work of Elizabeth Kubler-Ross

KUBLER-ROSS CHANGE CYCLE

Psychological



Adapted from the work of Elizabeth Kubler-Ross

Synchrotron X-ray
Topography

Non-destructive analysis



Express characterisation services at the European Synchrotron

Synchrotron X-ray solutions for high-throughput analysis
of electronics components



Commitment
New focus



**Right resources, right person,
right equipment, right context.**

A COMMERCIAL-FRIENDLY CULTURE?

- 1) Manage staff expectations (recruitment and after)
- 2) Return income fraction to earning teams
- 3) In-pocket rewards for staff (tech transfer)
- 4) Resources - recruit the right science and admin team
- 5) Encourage peer review access and collaborations with industry (papers for staff)
- 6) Staff training on working with industry, IP, entrepreneurship
- 7) Industry work part of internal meritocracy

Challenge 2

Getting industry through the front door

PERCEPTIONS ARE (VERY) HARD TO CHANGE

Our view of the ESRF:

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

Look what we can do!



Industrial translation:

- Expensive and difficult to use
- Risky
- Fundamental science

Not for me.



TWO-WAY UNDERSTANDING



Rosetta Stone

- **In-house marketing:** scouting, B2B, conferences, exhibitions, brokerage, 1:1 with companies, on-site training...

- **Multipliers**



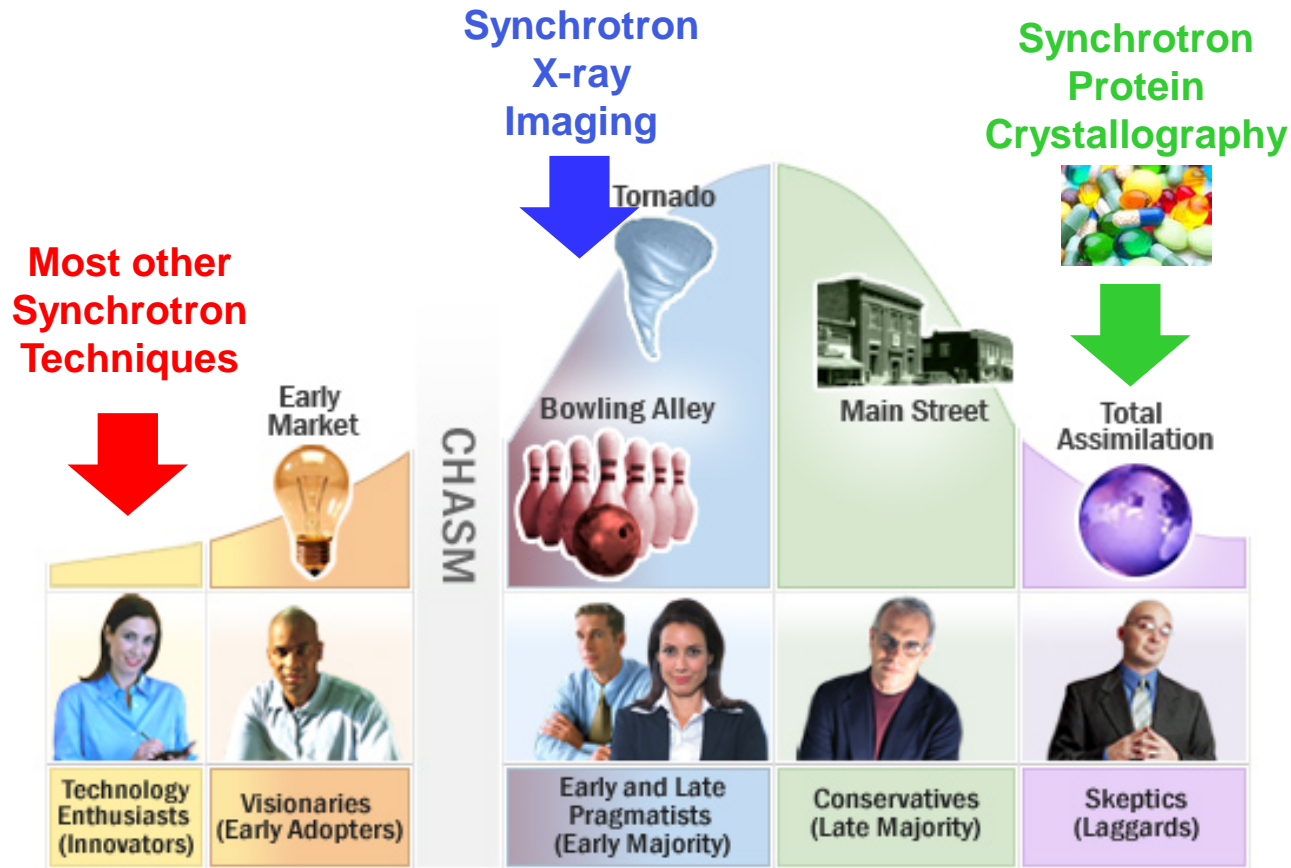
:CR: Colloidal Resource



SERVICES AND TOOLS: GIVE INDUSTRY WHAT-THEY-NEED



SYNCHROTRON X-RAYS: AN INDUSTRIAL COMMODITY?



Geoffrey Moore; www.chasminstitute.com

OPERATION: INNOVATION AND INDUSTRIAL APPLICATIONS – P&G SIGN MASTER COLLABORATION AGREEMENT



Gerard Baillely (centre, P&G VP),
8 September 2017, ESRF Visitor Centre

ESRF and ILL have signed a Master Collaboration Agreement with P&G making us strategic research partners to P&G.

This signature sets up a collaboration framework between the partners to help advance pre-competitive industrial research with the support of our facilities and skills.

- **Joint PhD and Post-doc research projects**
- **Innovation-led Long-Term Proposals**
- **European and national funding proposals**
- **Spillover into proprietary research programme**

MSA

MTA

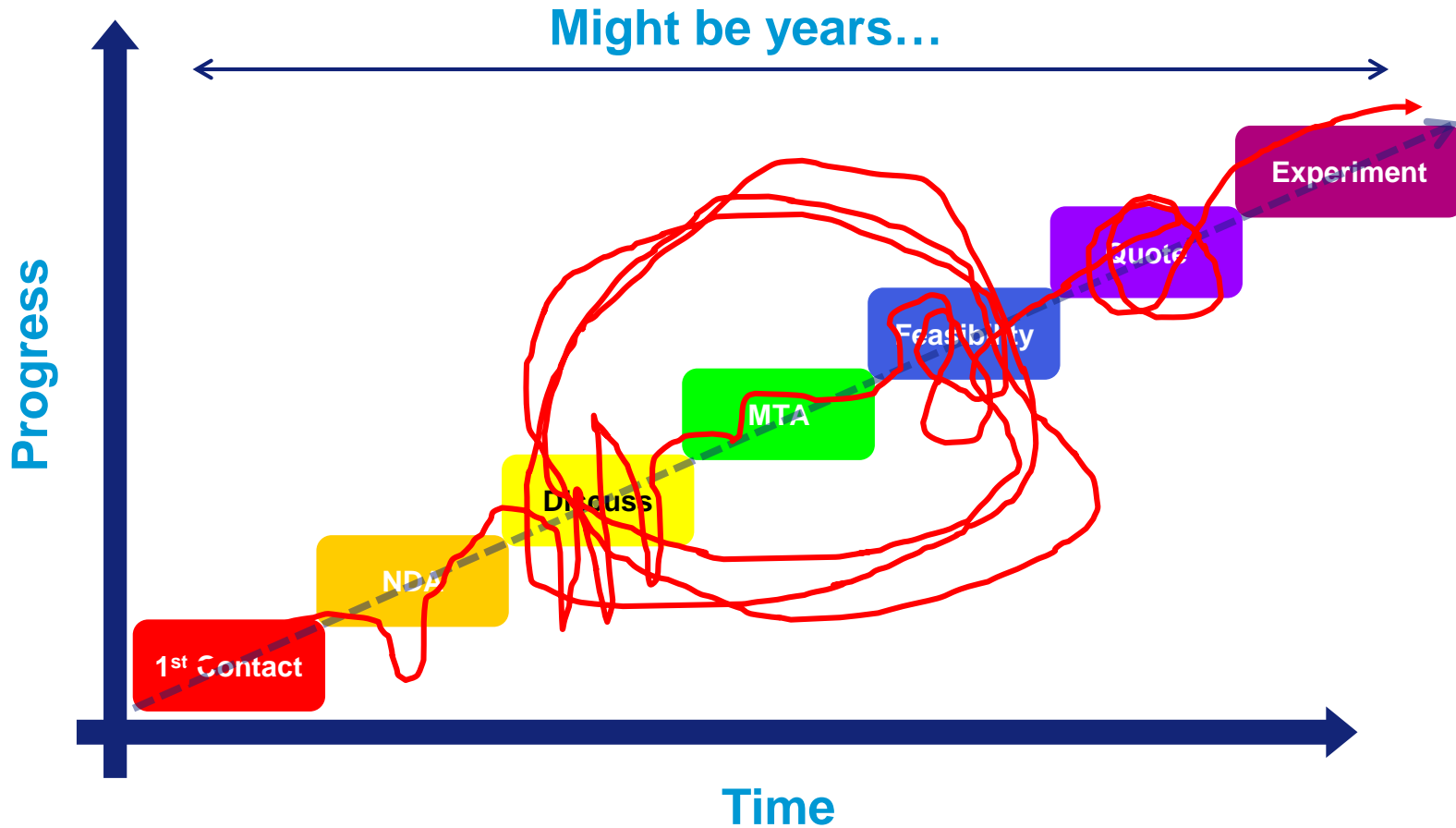
T&C

Quote

NDA

“CGA”

COURTING INDUSTRY: RARELY A SMOOTH PATH



(after Markus Nordberg, CERN)

HALF-WAY TO COMMERCIAL NIRVANA?

- **Flexible**
- **Responsive**
- **Patient**
- **Take on risk**

An “in-house SME”





10M€ over 5 years from a country of 5.5 million people.

Extrapolate to 500 million population of the EU (± ).

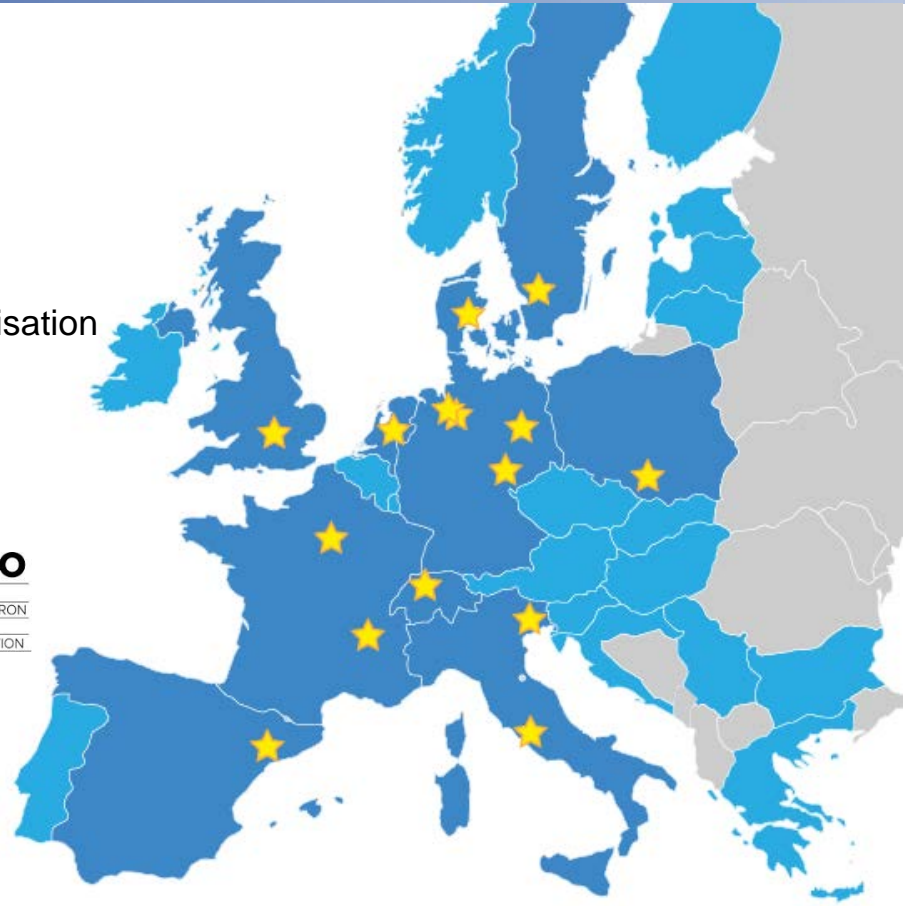


*“The current framework for interaction with industry is **not ideal** and both RI and industry **do not fully perceive the reciprocal potential benefits** of proactively engaging in collaboration.*

*The **lack of an appropriate information flow, different language and objectives** tend to increase this gap. An RI, Academia and Industry's **mind-set shift** is needed as well as a **stronger communication** of the RI added value beyond the academic circles.”*

LEAPS – League of European Accelerator-based Photon Sources

- **Launched:** 2015
- **Chairs:** H. Dosch
- **Co-chairs:** A. Harrison & C. Quitmann
- **Partners:** 15 Institutions in Europe
European Synchrotron User Organisation



LEAPS – League of European Accelerator-based Photon Sources

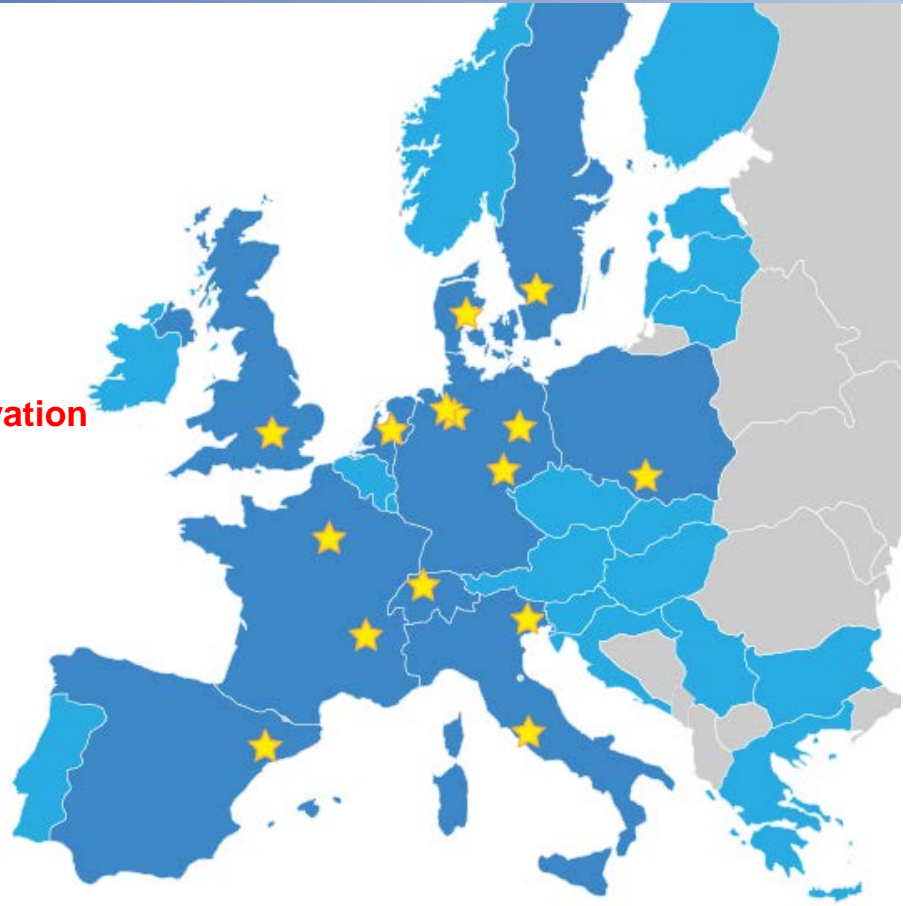
Goals

- Develop coherent Roadmap of all SR and FEL facilities in the EU:
 - 1) Strong & diverse user community
 - 2) Best practice
 - 3) **Push & disseminate technology and innovation**
 - 4) Integration & sustainability
 - 5) Enable excellent science
 - 6) Next generation light sources
 - 7) Open science

LEAPS Charter

LEAPS Strategy Document (Nov 2017)

Input to EC FP9 2020-2026



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Strategic actions at Regional, National and European levels for a new light source-industry culture of engagement:

- **Building the European innovation workforce:** education of scientists from industry, academia and light sources to facilitate improved interactions for today's scientists and focused training for the next generation;
- **Financial support for effective collaboration:** fostering partnership and collaboration opportunities between industry and light sources by providing access for SMEs through to funding large scale key challenge projects embedding industry at the heart of trans-national strategic projects;
- **Optimising return on investment:** support for all stages of the technology transfer process to enable novel and innovative technologies developed at light sources to find their way to market.



LEAPS

League of European
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Photon Sources

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Thank you for your attention

