### WP5.1 Professional training and apprenticeship (CEA, DESY, INFN)

For each of the two facets : goal and activities

# WP5.1 Professional training and apprenticeship (CEA, DESY, INFN).

• This task aims at promoting professional skills training and cross improvement between research laboratories and industry by profiting from the excellent scientific and technical environment provided by their Technological Infrastructures, and eventually proposing a development plan for generalizing such a program across European Technological Infrastructures. In this way, personnel may bring technical and scientific knowledge as well as approaches to the R&D work, which are not available within the hosting party.

#### A) Training and apprenticeship in TI

Defining the conditions (where, how, how long)...
setting the basis for an apprenticeship program (what)
where professional technicians and young engineers
from relevant industrial partners (who is elligible)

would be trained by hands-on fabrication, assembly or test of accelerator and magnet equipment and by exercising key techniques (examples next slide)

• To facilitate this program, the certification of the Training Courses provided by scientific laboratories towards Industry will be addressed and supported.

### A) Definition of training courses on key techniques (examples)

Key techniques	Hands-on work	Hosted by <i>(TI)</i>	Duration (in hours)	Certificate name <i>(tbd)</i>
Ultra-high vacuum and cleanliness	Single cell preparation for cold RF test			
Eddy-currents Scaning	Niobium sheet analysis			
RF engineering	Cavity tuning			
RF engineering and Cryogenic	Perfom a cold RF test of the cavity			
SC coil winding and electrical connections				

# B) Training and apprenticeship in industry.

 The engagement in industrial R&D activities and in services to the industry aimed at innovating their products and processes would benefit from the secondments of researchers and technical personnel within the companies themselves. Seconded personnel may obtain a more direct and a deeper understanding of the problem being worked, including initially overlooked requirements, constraints and potentialities and conversely they may acquire knowledge and be trained to new techniques, equipment and methodologies.

# B) Activities to support the engagement

- 1. Exploring and promoting the exploitation of existing programs at regional and local level that support secondments of PhD students, post-docs, researchers and technical personnel employed by universities and research laboratories within European industries and, especially, Small and medium enterprises; take advantages of all past experienced
- 2. Identifying and examining organizational aspects that are seminal for the feasibility and the effectiveness of the secondments for all parties involved.

#### Milestones and Deliverables

- M5.2 Preliminary report on the required conditions for apprenticeships program in TI. (M16)
- M5.3 Preliminary report on the required conditions for apprenticeships program in industries. (M18)
- **D5.2:** Final report on the required conditions for apprenticeships program in TI. (M28)
- **D5.4**: Final report on the required conditions for apprenticeships program in industries. (M30)

#### Questions

- We need to collect all your past experiences (network)
- Which Industrial Partner is eligible to Training Courses ?
- Does it break the call for tender rules?
- Which tools to track the technician or engineer certifications?

- Define which on-the-job training
  - Perform an helium leak test
  - Operate a test cryostat
  - Impregnate epoxy resins for conductor
- Associate some best practices teaching
  - Some technical lessons
  - Avoid redundancy with exiting offers (Société Française du Vide, ...)
- Deliver obtained qualifications
  - Vacuum, electron beam welding operation, Clean assembly
    like in CONFREND