WORKSHOP AMICI WP5 INDUSTRIALIZATION

1) WP5 description, scopes, organization and relations with other WPs -

P.Fabbricatore (20 min + 20 min disc.)

2) T5.1 Professional training and apprenticeship –

S.Berry (20 min + 20 min disc.)

3) T5.2 Harmonization- Material and Component Reference –

S.Bousson (20 min + 20 min disc .)

4) T5.3 Harmonisation - Cryogenic Safety Procedures –

S.Grohmann (20 min + 20 min disc.)

5) T5.4 WP5.4 Requirements and conditions for developing prototypes in the industry

P.Michelato (20 min + 20 min disc.)

6) Open discussion and conclusions (up to 1.5 h)

OBJECTIVES

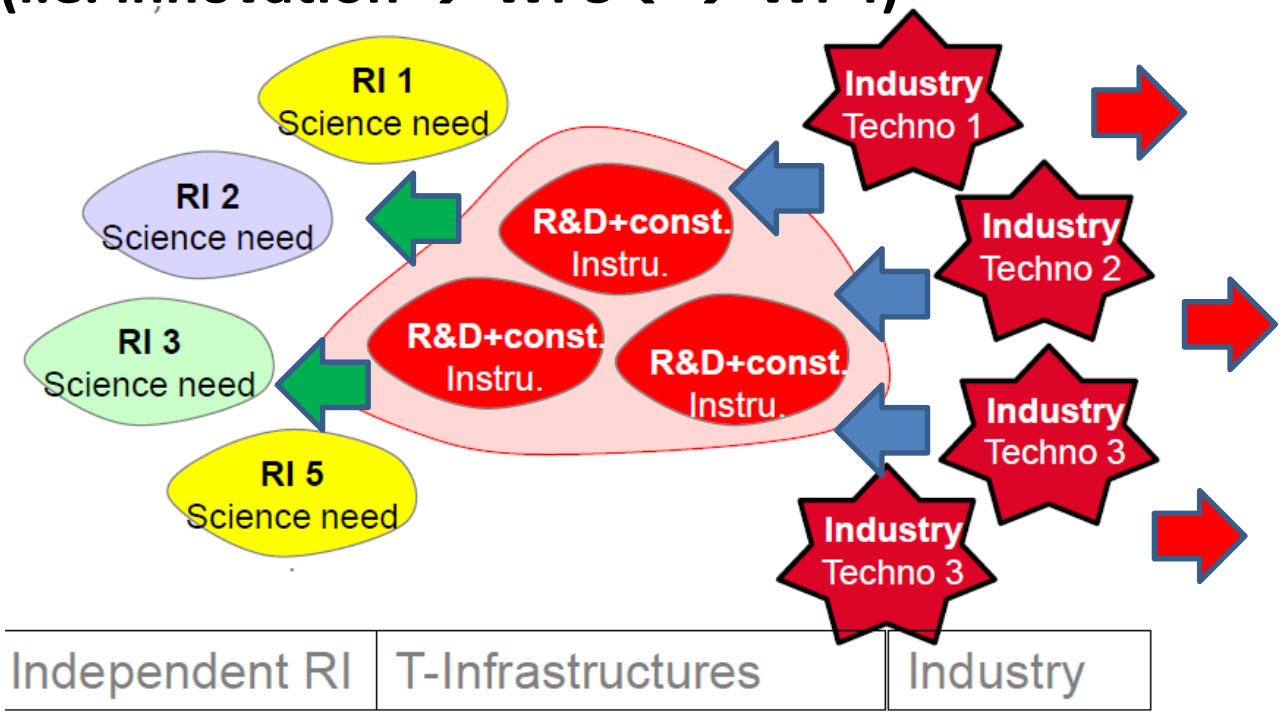
The overall goal of this Work Package is to sensitize and train the industrial companies in the needs, the knowledge (know-how), the techniques, the methods and the quality standards involved in the accelerator and superconducting magnet technologies developed in the Research Institutes.

We should allow the industries to be able to develop and construct, almost independently, accelerators (or components of accelerators) and sc magnets for research projects (industrialization) and, possibly, applications beyond RI interests (innovation) and to placing European Industries in position to participate in the construction of new Research Infrastructures in Europe and worldwide.

WP5 Industrialization.
Industry for Research's benefit: new instruments

- Professional training and appendiceship
- Harmonization (Materials – Cryogenic Safety)
- Prototyping in industry

In the end industry also benefits for their own new product development (i.e. innovation → WP5←→ WP4)



T5.1 Professional training and apprenticeship
S.Berry - Other participants DESY, INFN

Training and apprenticeships in TIs, where professional technicians and young engineers from relevant industrial partners would be trained by hands-on fabrication, assembly or test of accelerator and magnet equipment and by exercising key techniques. **CEA, DESY**

- **Training and apprenticeships in industry** through secondment of researchers and technical personnel within the companies themselves. Obtaining a more direct and a deeper understanding of the problem being worked, including initially overlooked requirements, constraints and potentialities and conversely may acquire knowledge and be trained employing new techniques, equipment and methodologies. **INFN**

What it is expected: Reports on required conditions for apprenticeship programs in both TL and industry (Proposing a model)
Working areas: Studies of existing cases, Use of EU opportunities, Understand the interest of the industry (relation with WP1) , Intellectual properties (WP4),

T5.2 Harmonization- Material and Component Reference
TL S.Bousson CNRS - Other participants DESY, IFJ-PAN

Establishing the basis for a common knowledge, background and use among TIs and related laboratories and industries of raw materials in relation to material and components involved in accelerator and large SC magnets.
Comment: T5.2 (and T5.3), by putting in collaboration the TI and industry, is a sort of practical test bed for AMICI

What it is expected: Definition of the possible structure and content of a database for materials and components

Working areas: Selection of materials, practical implementation of a data base, work with industry

T5.3 Harmonization- Cryogenic Safety Procedures
TL S.Grohmann KIT- Other participants CEA, CERN

Standardisation of safety procedures in particular in the domain of cryogenic equipment. The search for a standardization of practices, the possibility to produce realistic and scaled validation tests will lead to make future projects easier, safer and cheaper. Under the EU regulations, this task will organize exchange of knowledge and procedures, with the goal to develop a common methodology used by labs and industrials for the design and fabrication of cryogenic equipment.

What it is expected: General harmonised guidelines for the safety of cryogenic equipment

Working areas: Organising and coordinating a working group at the European Committee for Standardization (CEN), where additional experts from Universities, research labs and industry will participate

T5.4 Requirements and conditions for developing prototypes in the industry

TL P.Michelato INFN - Other participants CNRS

Define requirements and conditions for prototype development in industry with the idea that taking a leading role in the construction of prototypes for the TI, can represent for industry a very effective way to acquire firsthand knowledge of cutting-edge technologies and to provide feedback on engineering aspects that are important for the latter-stage industrialization process

What it is expected: Report on requirements and conditions (Developing of a model for TI-industry cooperation)

Working areas: Studies of existing cases, Understand the interest of the industry (relation with WP1) , Intellectual properties (WP4)

WP5 Deliverables

Deliverable Number[14]	Deliverable Title	Lead beneficiary	Type[15]	Dissemination level[16]	Due Date (in months)[17]
D5.1	Definition of the possible structure and content of a database for materials and components	6 - CNRS	Report	Public	26
D5.2	Final report on the required conditions for apprenticeships program in TI	1 - CEA	Report	Public	28
D5.3	General harmonised guidelines for the safety of cryogenic equipment	10 - KIT	Report	Public	28
D5.4	Final report on the required conditions for apprenticeships program in industries	4 - INFN	Report	Public	30
D5.5	Final report on conditions for developing prototypes in industry	4 - INFN	Report	Public	30

Relevant Milestones

Milestone number[18]	Milestone title	Lead beneficiary	Due Date (in months)	Means of verification
MS18	List of safety scenarios in liquid helium cryostats	10 - KIT	12	M5.1 - List of safety scenarios in liquid helium cryostats (M12)
MS19	Preliminary report on the required conditions for apprenticeships program in TI	1 - CEA	16	M5.2 - Preliminary report on the required conditions for apprenticeships program in TI (M16)
MS20	Preliminary report on the required conditions for apprenticeships program in industries	1 - CEA	18	M5.3 - Preliminary report on the required conditions for apprenticeships program in industries (M18)
MS21	Preliminary conclusions of the working group on prototyping issues	4 - INFN	24	M5.4 - Preliminary conclusions of the working group on prototyping issues (M24)

WP5 Effort in person-months

Partner number and short name	WP5 effort
1 - CEA	7.00
2 - CERN	4.00
3 - DESY	3.00
4 - INFN	12.00
5 - IFJ PAN	6.00
6 - CNRS	6.00
10 - KIT	6.00
Total	44.00

WP5 Organization – Budget- Meetings

AMICI Budget Final	WP5		
	PM	Personnel cost	Other costs
CEA-Irfu	4	32,4	8
CEA-SBT	3	24,3	5
CERN	4	44,8	5
DESY	3	24	9
UU			
IFJ-PAN	6	24	6
INFN	12	90	15
IN2P3	6	48,6	5
PSI			
STFC	0	0,0	0
KIT	6	52,8	4,5
Total	**44**	**340,9**	**57,5**
Total WP		**398,4**	

Deliverables under TL responsibility

Regular video- meetings among WP5 coordinator and TL for checking the status of activities (2-3 per year).

WP5 workshops before the annuals AMICI meetings

Task meetings (Under task organization)
Task workshop?

Inter-task meetings if necessary

WP5 Participants and Mailing list

Name	Institution	Task	E-mail
Stéphan Berry	CEA/Irfu	T5.1 TL	stephane.berry@cea.fr
Dariusz Bocian	IFJ-PAN	T5.2	Dariusz.Bocian@ifj.edu.pl
Sébastien Bousson	IPNo-CNRS	T5.2 TL	bousson@ipno.in2p3.fr
Philippe Bredy	CEA/Irfu	T5.3	Philippe.Bredy@cea.fr
Eric Ercolani	CEA/SBT	T5.3	eric.ercolani@cea.fr
Pasquale Fabbricatore	INFN	WP5 coord.	pasquale.fabbricatore@ge.infn.it
Mohammed Fouaidy	IPNo-CNRS	T5.2	fouaidy@ipno.in2p3.fr
Umberto Gambardella	INFN	T5.1	gamba@sa.infn.it
Steffen Grohmann	KIT	T5.3 TL	steffen.grohmann@kit.edu
Andre Henriques	CERN	T5.3	andre.henriques@cern.ch
Mohamed El Khaldi	LAL-CNRS	T5.4	elkhaldi@lal.in2p3.fr
Paolo Michelato	INFN	T5.4 TL	paolo.michelato@mi.infn.it
Hans Weise	DESY	T5.1 T5.2	hans.weise@desy.de
Christine Porcheray	CEA/Irfu	(T5.1)?	christine.porcheray@cea.fr
Jean-Marc Poncet	CEA/SBT	(T5.3)	jean-marc.poncet@cea.fr