

Presentation of FP7-



“European Collaboration for Accelerator R&D”

*J.P. Koutchouk, for the EuCARD preparation team
(coordination office, WP coordinators)*

The Goals

- **Initiative of ESGARD**, building up on FP6-CARE
- **Collaborative R&D in accelerator sciences**
throughout Europe on topics defined of highest priorities by
 - *HEP: European Strategy Group for particle physics*
 - *Nuclear physics and light sources: ESFRI Roadmap*
- **Create focus & catalytic effect** (*limited EC funding!*)

The European Framework

FP7 – Capacities – Research Infrastructures

- *Support of existing infrastructures*
- *Integrating activities (R&D, Networks, Trans-national accesses)*

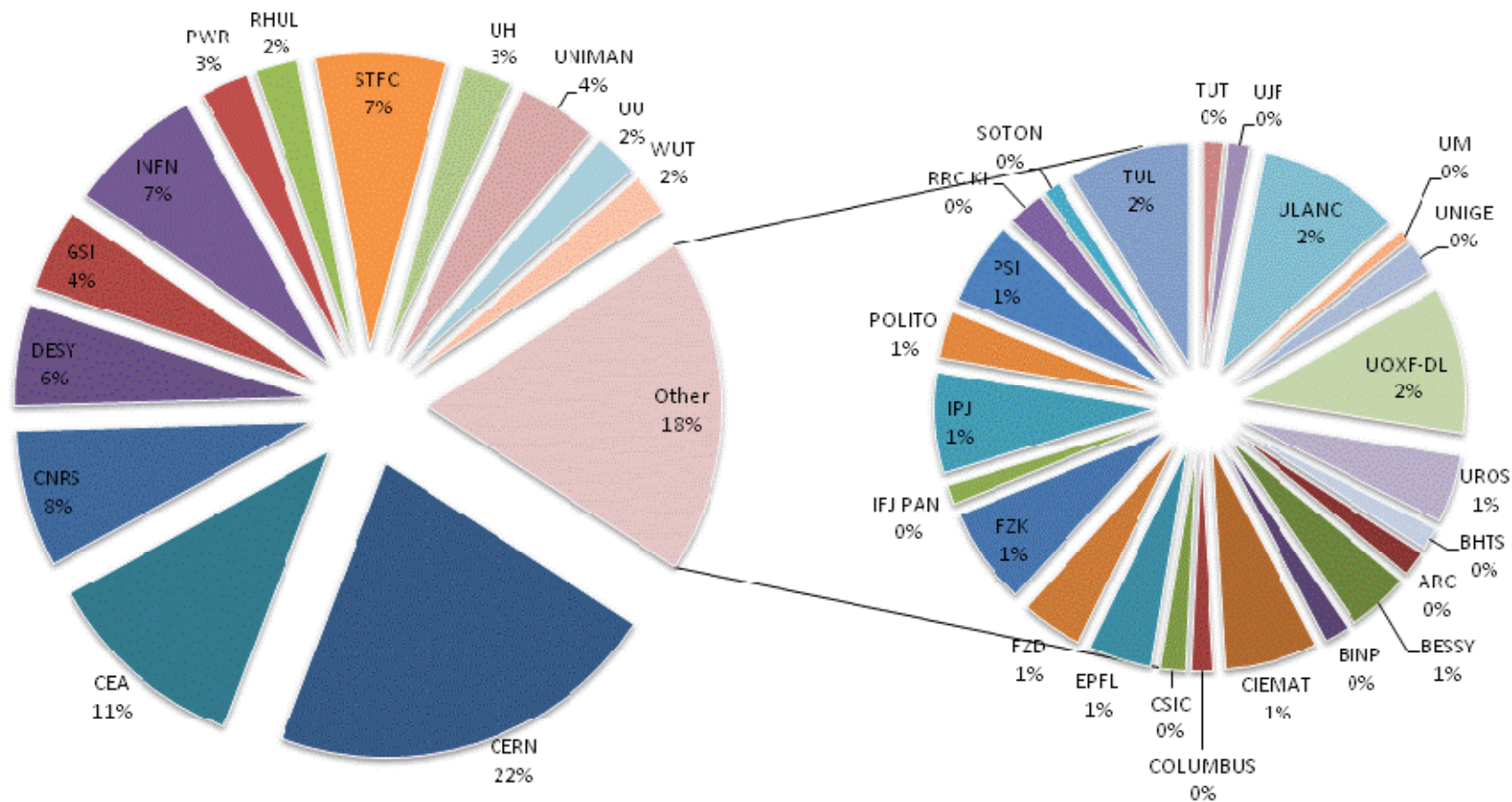
appears to be the most appropriate EU framework ...

but has constraints: upgrade of existing infrastructures, access to facilities to be organized for users from outside the consortium.

The architecture of EuCARD

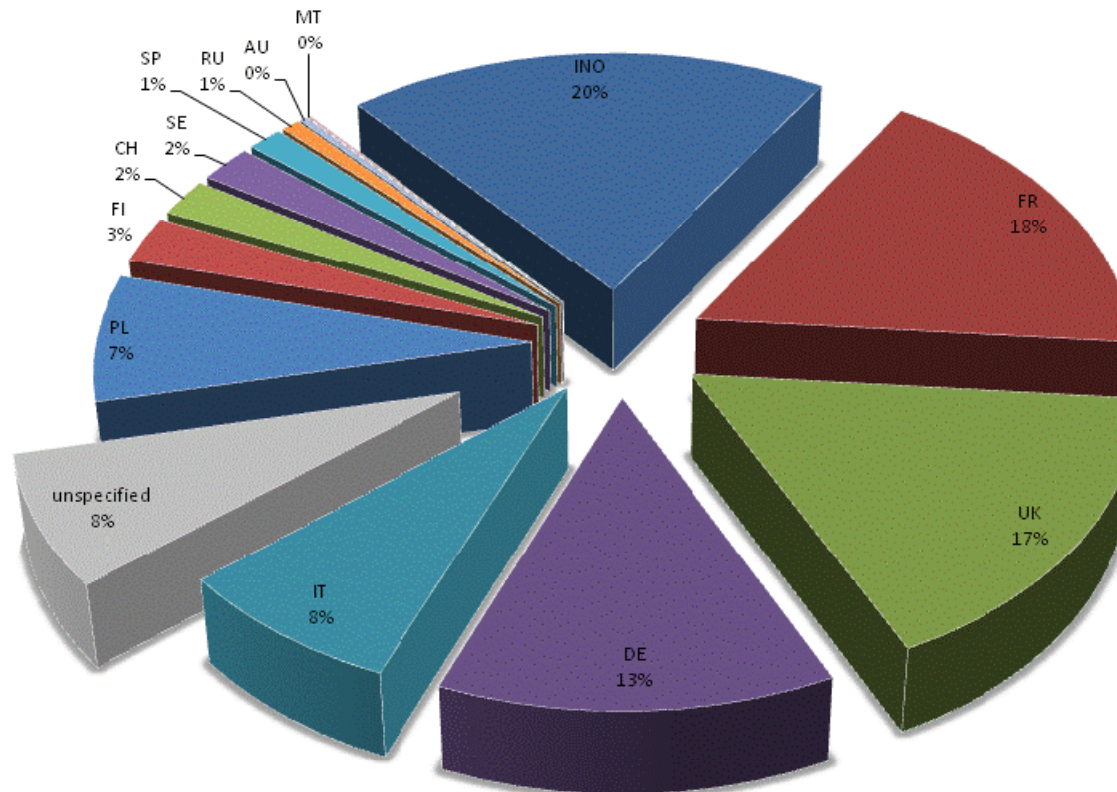
1	MGT	J.P. Koutchouk, deputy?, S. Stavrev/CERN	0.2%
2	Dissemination	R. Romaniuk/WUT, K. Kahle/CERN	1.5%
3	Neutrino network	V. Palladino/U. Napoli	3%
4	Accelerator sciences networks	W. Scandale, F. Zimmermann/CERN, A. Variola/CNRS-LAL	6%
5	Access to HiRadMat@SPS	I.Efthymiopoulos/CERN	0.5%
6	Access to MICE	A. Nichols/STFC-RAL	2%
7	High Field Magnets	G. De Rijk/CERN, F. Kircher/CEA	21%
8	Collimation & Materials	R. Assmann/CERN, J. Stadlmann/GSI	12.8%
9	NC linac technologies	G. Blair/RHUL, E. Jensen/CERN	20%
10	SC RF technologies	D. Proch/DESY, O. Napoly/CEA	24%
11	Novel concepts	M. Biagini/INFN, R. Edgecock/STFC-RAL	9%

The EC funding per participant



The EC funding per country

EuCARD, EC request by countries: 10,000,000 €



Other important aspects

- **37 participants (leading EU accelerator labs + smaller institutes and universities) and 40 « associates » (large number of non-EU Institutions).**
- **EC funding covers ~30% of total costs to maximize the S/T programme and number of participants.**
- **Duration: 4 years, starting 01/04/2009**
- **Status: accepted with high ranking by reviewers but maximum EC funding from 15 to 10 M€ (total budget of 33 M €).**
Finalizing negotiation.
- **Commitment to balancing funds and deliverables received from all participants. Signatures to official documents to be collected starting after this meeting.**

Coordination office (CERN)

- **Coordinator:** J.P. Koutchouk, senior accelerator physicist, Accelerator Technology department.
- **Administrative Manager:** S. Stavrev, coordination officer of EU relations, Directorate Services Unit
- **Budget (2007, 2008):** E. Jensen, senior RF engineer, Accelerators & Beams department
- **Editor of documents (2007, 2008):** G. de Rijk, senior physicist, Accelerator Technology department
- and **help and advicing** from: R. Aleksan, R. Aymar, G. Guignard, P. Lebrun, J. Miles, P. Hagen, K. Kahle

A brief overview of the Work Packages:

They will be presented in more details by the WP coordinators. We shall as well organize a “kick-off per WP” before April 1rst.

Joint Research Activities

The largest fraction of the activities and funding are dedicated to the two « legs » of accelerator technologies that limit the accelerators of the future, i.e. the magnets and the acceleration:

- *R&D on Higher Field Magnets, to break the 8 to 10 Tesla barrier. This is the top priority for the reviewers and the Commission. It is complemented by synergetic tasks on higher field undulators and HTS links suitable for accelerators.*
- *R&D on Higher Gradient Acceleration: ILC/FEL technology and CLIC technology (2 WP's). A number of associated tasks are present, such as crab cavities, stabilization, BDS, HOM distribution, SCRF gun,...*

Joint Research Activities

Another topic of growing importance for accelerators is the protection against excessive beam losses (quench or damage):

- *R&D on Collimation and Materials*

Finally, the last work package is oriented towards “unconventional” concepts that need assessment:

- *R&D on crab waist, non scaling FFAG, laser-plasma acceleration.*

Networks

The networks provide platforms for information exchange (workshops, meetings), exploratory studies, exchange of visitors, with opportunities for students.

Besides the 37 participants, about 40 « associates » are expected to participate, opening this EU activity **worldwide**.

- **NEU2012**: Neutrino community
- **Accnet**
 - **EuroLumi** : Upgrade of performance and required technologies.
 - **RFTech**: nc and sc RF technologies and test infrastructures.

Trans-national Access Facilities

The goal of the EU is to give a chance to external researchers to access hightech facilities with the support of EU funding.

HighRadMat@SPS:

target zone at the SPS for pulsed irradiation, operational in 2010.

MICE (STFC-RAL):

- Precision beams and diagnostics: muons, protons, pions and electrons from 100MeV/c to 400 MeV/c.
- Muon ionization equipment

Dissemination, Communication and Outreach

WUT, CERN + ALL

- Considered of very high importance by the EC (measures the impact of their investments)
- *The team in charge has great ideas but it is the responsibility of all partners to contribute to dissemination.*

Status of project negotiation

- *Annex 1 (Description of Work): final EC comments on its version 3 received Monday 1st Dec.*
- *GPF's: submission agreed by EC after final trimming of DoW. Start collecting partner signatures of A2.5 form as of next week.*
- *Consortium Agreement: version 2 to be distributed next week.*
- *Grant Agreement: expected at the beginning of 2009*

Besides helping the work of the coordination office, there is a significant incentive to sign quickly →

Simplifications in reporting

Both the EC and the preparation team have worked with the goal of reducing the extra-work induced by EC projects:

- *Only **3 EC periodic reports** at M18+2, M36+2, M48+2.*
- *Internal reporting is based on a **6 month periodicity**.*
- *Financial reporting is on **full cost** for FP7, but an agreement was negotiated with EC (not yet written) to **report on (at least) the minimum fraction of the full cost that justifies the EC funding**.*

With an average funding of 30% in EuCARD for a maximum authorized of 75% for public organizations, reporting and audits will be done on at least 40% of the full costs.

- *This should leave the possibility to mobilize matching funds with a large flexibility, e.g. before EuCARD starts officially, and should prevent difficulties with details when audited.*
- *With the CARE experience, **deliverables are less numerous**.*

Conclusion

EuCARD is being prepared to be a flexible, yet managed, tool for collaborative accelerator R&D. The expectations of the EC go beyond collaborative use of the EC funding. Structuring and long-lasting structures are called for. EuCARD is proposed to be anchored in the HEP landscape by the CERN Council:

“The Strategy Secretariat recommends this project for recognition as part of the European Strategy for Particle Physics. In parallel the long term program for accelerator R&D in Europe will need to be addressed, to review if important activities are underrepresented and/or need to be strengthened, and to address how self sustained projects can be organised also in cases where EU funding is missing or is insufficient. The Secretariat, through its link to the European Laboratories Directors meeting and ESGARD, is encouraged to address this, involving the EUCARD management in the discussion.”

Acknowledgements

Preparing EuCARD was quite an adventure, with overbooking, policy changes by UK-STFC, different understandings on the ESGARD rules for financial support, the jungle of indirect costs, the high mark followed by a 33% budget cut and hard time to make painful choices, the so numerous EC guideline notes with their subtleties...

It would not have been possible without the enthusiasm and hard work of the WP coordinators, the many colleagues of the coordination office, the experienced “CARE-men”, the strong involvement of the CERN DG, ESGARD and the EC Officer in charge of EuCARD.