DevDet WP8: Irradiation Facilities

- Objectives:
  - Provide access to European Irradiation Facilities for Particle Physics Detectors developments
  - Provide technical support to users during irradiations
  - Provide all kind of radiation fields, having in mind complementarity and redundancy between the facilities
  - Provide economical help to users with a budget for travels and subsistance during irradiations
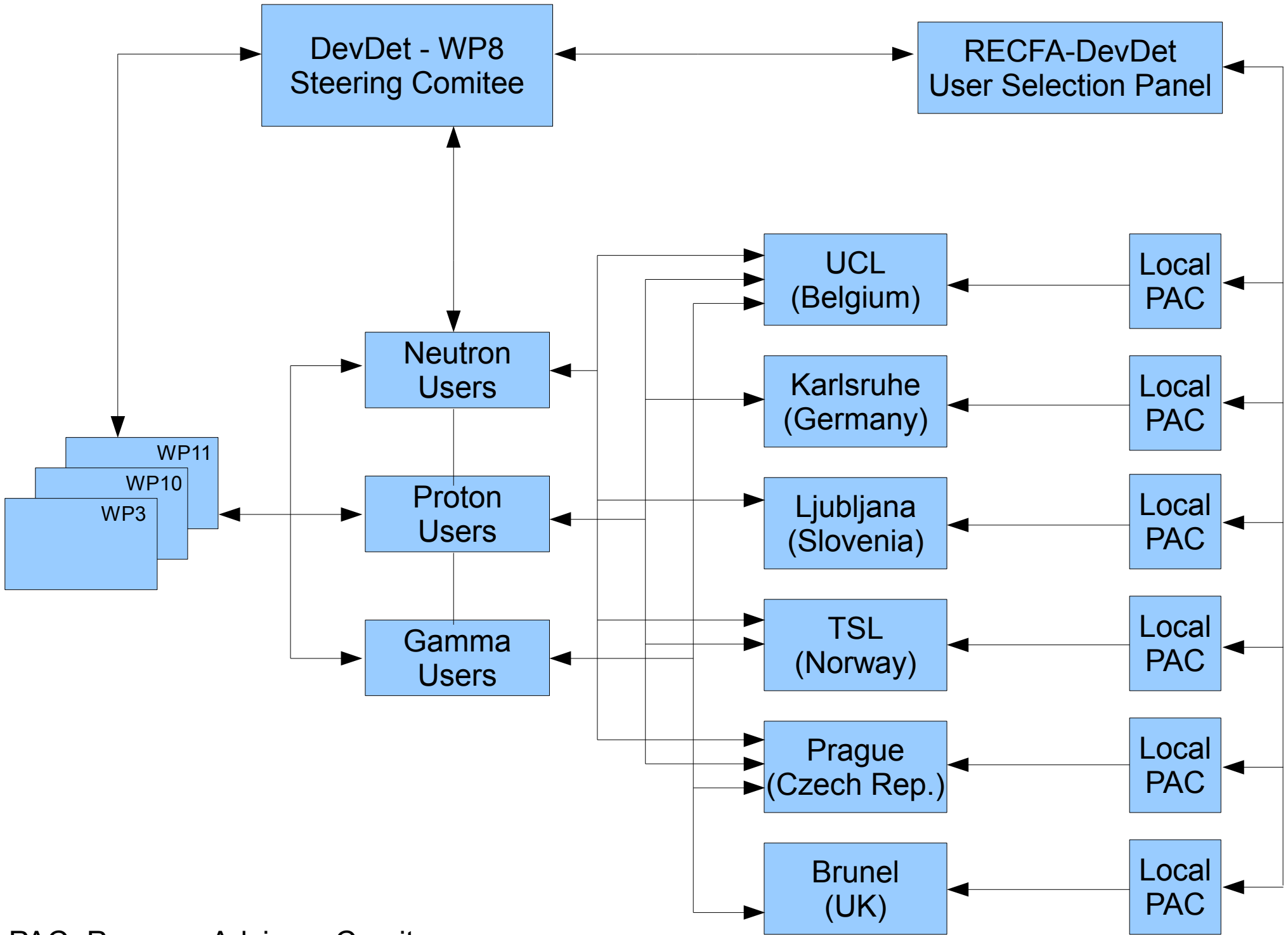
Fluences at sLHC

Radius (cm)	n (%)	p, ⬚ (%)	Fluence (n_{eq}/cm^2)	Typical Detectors
<20	20	80	10^{16}	Pixels (Si)
20-60	50	50	10^{15}	Short strips (Si)
60-100	90	10	5×10^{14}	Long strips (Si)
>100	90	10	10^{14}	Calorimeters (Crystals)

Selection Criteria

- Accessibility
  - Readiness of the installation as well as in view of
  - existing links and experience with HEPhysics community
- Fluences
  - Provide in a reasonable irradiation time (typically few hours).
- Irradiation area
- Complementarity: provide all radiation fields.
- Redundancy
- Uniqueness
- Support to users

Irradiation Facilities

UCL	cyclotron Co60	n,p,γ	Belgium
Ljubljana	reactor	n	Slovenia
Karlsruhe	cyclotron	p	Germany
Prague	reactor cyclotron	n,p	Czech Rep
Brunel	Co60	γ	U. Kingdom
TSL	cyclotron	n,p	Sweden

DevDet - WP8 Steering Comitee		RECFA-DevDet User Selection Panel

Neutron Users

Proton Users

Gamma Users

WP11
WP10
WP3

UCL (Belgium) — Local PAC

Karlsruhe (Germany) — Local PAC

Ljubljana (Slovenia) — Local PAC

TSL (Norway) — Local PAC

Prague (Czech Rep.) — Local PAC

Brunel (UK) — Local PAC

PAC=Program Advisory Comitee

Calculation of the Unit Cost for Transational Access

Participant number		Organisation short name			
Short name of Infrastructure		Installation number		Short name of Installation	
Name of Installation				Unit of access	Beam hour

A. Estimated direct eligible costs of providing access within the project life-time excluding personnel costs

Describe the direct eligible costs for providing access to the installation over the project life-time (e.g. maintenance, utilities, consumable costs). All contributions to capital investments of the infrastructure are not eligible .	Eligible Costs (€)
Electricity	1,292,600
Maintenace (Consumables,Dosimetry)	821,532
Total A	**2,114,132**
of which subcontracting (A')	

B. Estimated personnel direct eligible costs needed to provide access within the project life-time

Category of staff (scientific and technical only)	Nr. of hours (1)	Hourly rate (2)	(3) = (1) x (2)
Scientific Staff (2 FTE)	14400	44.22	636,768
Enginneers (3 FTE)	21600	41.4	894240
Technical Staff (10 FTE)	72000	25.11	1807920
			0
			0
			0
			0
			0
			0
Total B			**3,338,928**

C. Indirect eligible costs = 7% x ([A-A']+B)	381,714
D. Total estimated access eligible costs = A+B+C	5,834,774
E. Total estimated quantity of access provided to all normal users of the infrastructure (i.e. both internal and external) within the project life-time	8,000
F. Fraction of the Unit cost to be charged to the proposal [1]	100%
G. **Estimated Unit cost charged to the proposal** = F x (D/E)	**729.35**
H. Quantity of access offered under the proposal (over the whole duration of the project)	800
I. **Access Cost** [2] **= G x H**	**583,480**

Calculation of the Unit Cost for Transational Access

Participant number		Organisation short name			
Short name of Infrastructure		Installation number		Short name of Installation	
Name of Installation				Unit of access	Beam hour

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C. Indirect eligible costs = 7% x ([A-A']+B)	381,714
D. Total estimated access eligible costs = A+B+C	5,834,774
E. Total estimated quantity of access provided to all normal users of the infrastructure (i.e. both internal and external) within the project life-time	8,000
F. Fraction of the Unit cost to be charged to the proposal [1]	20%
G. **Estimated Unit cost charged to the proposal** = F x (D/E)	**145.87**
H. Quantity of access offered under the proposal (over the whole duration of the project)	800
I. Access Cost [2] = G x H	**116,696**