

# Project management

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# Collaboration Agreements

- Cockcroft

- Formal collaboration agreement KE/3298/BE/HL-LHC
  - Drafted in 2015, but finally signed in June 2017
- Two final deliverables remain:
  - Design report for a final gas-jet for HL-LHC (June 2018)
  - Full prototype adapted for testing in the LHC (June 2019)

- GSI

- Two collaboration agreements, the latest being KE3036/BE addendum #1
  - Signed in July 2017
- Deliverable was the Milestone 1.6 report for December 2017
  - Approved by CERN, needs to be published in CDS

# Budget

- Core budget for the v3 prototype instrument
  - 50/50 collaboration between CERN and STFC (UK) with Liverpool (Carsten) as budget holder
- Budget for specific LHC integration items (being) negotiated with HL-LHC
  - Eg, cabling, vacuum sector activities.
- Budget for e-lens test stand
  - Does this cover diagnostics?

# Draft 'who does what' list

	Budget	Manpower
Infrastructure for LHC		
DIF (fibres)	CERN	CERN
DIC (cables)	CERN	CERN
DIR (racks)	CERN	CERN
Gas piping	CERN	CERN
Cooling water for chips (?)	CERN	CERN
Design deliverables		
v3 Instrument design (CERN Design office)	Cockcroft	both
Engineering for integration (fellow/student)	CERN	CERN
LHC Integration design and drawings	CERN	CERN
ECRs and other CERN documentation	CERN	CERN
Performance qualification documentation	Cockcroft	Cockcroft
Instrument design document	Cockcroft	Cockcroft
Validation on e-lens test bench		
Integration drawing/work	CERN	Both
Experimental operation (fellow?)	CERN	CERN
Cabling and services	CERN	CERN
Diagnostics for the e-lens bench?	CERN	CERN
Vacuum for LHC		
New LHC sector with vacuum pumps, gauges, valves and manpower	CERN	CERN (VSC)
Vacuum cleaning, leak-test, acceptance of intermediate items	CERN	CERN
New vacuum beam pipes and sector (price from VSC)	CERN	CERN (VSC)
Control and operation		
Control system and software for CCC operation	CERN	CERN
Control hardware	CERN	CERN

Instrument hardware (Phase 1)		
Interaction vacuum chamber, with any coatings	Cockcroft	CERN?
RF insert and non-reflective coatings	CERN?	CERN
Vacuum valves on the instrument (all-metal non-RF type)	CERN?	CERN
Instrument hardware (Phase 2)		
Gas jet vacuum chambers (production, test)	Cockcroft	Cockcroft
Flat nozzles, skimmers, baffles,	Cockcroft	Cockcroft
Nozzle/skimmer alignment jig	Cockcroft	CERN
Special (CD etc.) nozzles	CERN	CERN
Optics, including lenses, MCP, camera, intensifier etc	Cockcroft	Cockcroft
Vacuum pumps and gauges for v3 (agreed with VSC)	Cockcroft	CERN?
Support structures in the LHC (design and manufacture)	CERN	CERN
Ongoing development costs		
Hardened optics		
SR background (coatings etc)		
instrument alignment		
LHC diagnostics?		