

MEMORANDUM

Date: 30 September 2010

To : Members of the LHCb RRB
 From : C. D'Ambrosio
 Subject : Category A M&O status for 2010 and request for 2011

Situation for 2010

About 90% of the expected contributions for M&O in 2010 had been received by the end of August. That is a total of 2.41 MCHF. Together with the carryover of funds from 2008 and a few late payments from 2009, these contributions have ensured that there has been no cash flow problem. The spending until second half of August is given in Table 1.

Item List	Spent	Budget
Detector related cost	385.4	920
Secretariat	107	192
Communications	26.7	50
Core computing	120.5	150
Online computing	326.4	750
Test Beam and calibration facilities	5.2	30
Laboratory operation	9.9	60
General services	182.6	360
Power		600

Table 1.
Status of Category A M&O at end of August in kCHF.

We note that 2010 is a first-time full data-taking year for LHCb. However, based on extrapolations of the spending profile until end of August and the experience from previous years, we expect that the budget forecast for this year is generally correct for all the items, except for Online and Offline computing. For the first, we expect a small underspending in the sub line Computers and, for the second, a small overspending.

LHCb under spent in chapter Online Computing in 2007 and 2008 mainly in manpower and for 2008 and for 2009 in the sub line Computers. Due to changing LHC schedules and strategies, we have had to modify our spending profile in the Online computing line. In fact, we had first to delay (until 2012-13) and now to anticipate the farm completion for 2011, to take in account the newly established running condition.

It has been the stated policy of LHCb to acquire the needed computing power on a "just-in-time" basis. This not only to have a top performing computing farm at the time required, but also to save money and to keep the flexibility to follow changing industrial computing standards.

The total funds available from Common Fund, non Common Fund and Core money for DAQ CPU Farm and ECS/TFC Computing infrastructure was 5.1 MCHF and 2.3 MCHF as of RRB 2005. This has not changed although the time of CPU purchase has moved with new LHC schedules. At the time, a rational replacement assessment, based on the LHC schedule and anticipated failure rates, was estimated to be in the range of 300 kCHF starting in 2009. With the new situation and in agreement with the scrutiny group, we ask to take this number up to 350 kCHF as from 2012.

Situation for 2011

The budget for 2011, as discussed with the Scrutiny Group, is given in Table 2 and its quasi-flat evolution for the 2011 – 2013 years is given in Table 3 together with the presently running 2010 budget. The sharing between the different Funding Authorities, Table 4, is slightly modified due to changes in the number of PhD equivalent members at the different institutes.

Item List	Budget 2011
Detector related cost	920
Secretariat	185
Communications	30
Core computing	150
Online computing	810
Test Beam and calibration facilities	30
Laboratory operation	60
General services	360
Power	970.0
VELO Spare (500 kCHF over 5 years)	100.0

Table 2.
Proposed M&O Cat.A budget for 2011 in kCHF.

Item List	2010	2011	2012	2013
Detector related cost	920	920	940	940
Secretariat	192	185	185	185
Communications	50	30	12	12
Core computing	150	150	150	150
Online computing	750	810	880	880
Test Beam and calibration facilities	30	30	30	40
Laboratory operation	60	60	60	60
General services	360	360	360	360
Power	600	970	300	600
VELO Spare (500 kCHF over 5 years)	100	100	100	100

Table 3.
Running and proposed M&O Cat.A budgets for 2010 and 2011 respectively and their evolution for 2012 - 2013 in kCHF. The VELO spare funding profile starts in 2009 and ends in 2013.

2011	PhD eq. total/ funding auth.		M&O A	VELO	Power	Total
			kCHF	kCHF	kCHF	
			2,545	100	970	
	%	CHF	CHF	CHF	CHF	
BRAZIL	12	3.4	85,546	3,361	32,605	121,513
FRANCE	44	12.3	313,669	12,325	0	325,994
BMBF GERMANY	16	4.5	114,062	4,482	0	118,543
MPI, MPG, GERMANY	6	1.7	42,773	1,681	0	44,454
IRELAND	2	0.6	14,258	560	5,434	20,252
INFN ITALY	53	14.8	377,829	14,846	0	392,675
NETHERLANDS	14	3.9	99,804	3,922	0	103,725
P. R. CHINA	3	0.8	21,387	840	8,151	30,378
POLAND	7	2.0	49,902	1,961	0	51,863
HHNIPNE ROMANIA	5	1.4	35,644	1,401	13,585	50,630
RUSSIA	32	9.0	228,123	8,964	36,839	273,926
SPAIN	18	5.0	128,319	5,042	0	133,361
SWITZERLAND	24	6.7	171,092	6,723	0	177,815
UKRAINE	3	0.8	21,387	840	8,151	30,378
UK	64	17.9	456,246	17,927	0	474,174
USA	9	2.5	64,160	2,521	23,158	89,838
CERN	45	12.6	320,798	12,605	0	333,403
TOTAL	357	100.0	2,545,000	100,000	127,924	2,772,924

Table 4.
Sharing of the proposed Category A M&O budget, power and VELO Spare for 2011.

Changes from 2010

As already pointed out main changes again reflect an updated spending profile in the Online Computing due to the new running conditions of LHC and to our policy of acquiring computing power on “just-in-time” basis. In 2010, this line was modified from 850 kCHF to 750 kCHF and now will grow to reach a maximum of 880 kCHF from year 2012 (to be compared to the previous estimation of 850 kCHF in 2014).

Other changes in the budget forecast are minor apart from a readjustment to full power cost of 970 kCHF. As asked by the SG, EVO cost has been halved for 2011 and zeroed for 2012.

2009 under spending

As already announced at the RRB in April 2010, we ask that the under spending from 2009, 121 kCHF, is kept as a buffer in M&O A. This is in agreement with CERN-RRB-2006-026.

Category B M&O

Category B M&O budget for 2010 is given in Table 5. Only minor adjustments are anticipated for 2011. The total is ~1100 kCHF, a bit less than half of the M&O Cat.A total.

CALO	345
HLT	0
Level_0	60
Muons	150
On Line	14
Outer Tracker	120
RICH	210
Silicon Tracker	80
VELO	115

Table 5.
Category B M&O budget for 2010 in kCHF.