

MEMORANDUM

Date: 13 October 2012

To : Members of the LHCb RRB  
 From : C. D'Ambrosio  
 Subject : Category A M&O status for 2012 and request for 2013  
 and Report on Common Fund and CORE expenses

**Category A M&O status for 2012 and request for 2013**

**Situation for 2012**

About 80% of the expected contributions for M&O in 2012 had been received at end of August. That is a total of ~2.2 MCHF (including Velo Spare and Power). Together with the carry-over of funds from 2011 and a few late payments from 2011, these contributions have ensured that there has been no cash flow problem. The spending until second half of August is given in Table 1. In the last months, another ~200 kCHF have been collected.

Item List	Spent	Budget
Detector related cost	524.3	880
Secretariat	125.0	185
Communications	15.5	50
Core computing	87.1	150
Online computing	422.5	900
Test Beam and calibration facilities	8.1	30
Laboratory operation	23.8	50
General services	209.5	330
Power		970

**Table 1.**

Status of Category A M&O at end of August 2012 in kCHF. To be noted that these amounts do not take in account 300 kCHF put in the special Online account.

We note that 2012 is the third-time full data-taking year for LHCb. As already noted in CERN-RRB-2012-056, the 2011 exercise, which represented a full data-taking year, has confirmed an under-spending in Detector Related and General Services. As expected, this trend is again confirmed with the first half-year 2012 results, which justifies the decrease on these lines operated for year 2012 (see CERN-RRB-2011-088 and Table 3). Core Computing is again in line with the expected expenditures, thanks to a successful re-organization of resources.

Finally, the Communications line shows an underspending, due to EVO, which was budgeted at 100% on SG request (see CERN-RRB-2011-088), but that was paid only at 50% by the experiments.

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 required time, but also to save money and to keep the flexibility to follow changing industrial computing standards. All this on top of an overall M&O Cat.A almost constant over the years. Therefore, as agreed in previous RRBs (see for example CERN-RRB-2011-090), we have transferred 700 kCHF on the special "Online Account". These transfers constitute the base of our "CPU replacement strategy", consisting in annual equivalent transfers of ~300 kCHF in order to satisfy the Farm needs until year 2018 (see CERN-RRB-2011-076).

In contact with the SG and with RRB, we will inform whenever expenditures are paid from this account.

As already anticipated in CERN-RRB-2012-056 and due to the 700 kCHF transferred in the Online Account in agreement with the SG (CERN-RRB-2012-114), we consider to not hold any carry-over for year 2012.

### Situation for 2013

The budget for 2013, as discussed with the Scrutiny Group, is given in Table 2 and its flat evolution for the 2014 – 2016 years is given in Table 3, together with the presently running 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. We also positively note the regular increase of the overall PhD number over the past years.

Item List	Budget 2013
Detector related cost	920
Secretariat	185
Communications	10
Core computing	170
Online computing	890
Test Beam and calibration facilities	35
Laboratory operation	50
General services	320
Power	970
VELO Spare (last year of contribution)	100

**Table 2.**

Proposed M&O Cat.A budget for 2013 in kCHF.

Item List	2012	2013	2014	2015	2016
Detector related cost	880	920	920	880	880
Secretariat	185	185	185	185	185
Communications	50	10	10	10	10
Core computing	150	170	170	170	170
Online computing	900	890	890	890	890
Test Beam and calib. facilities	30	35	35	25	25
Laboratory operation	50	50	50	50	50
General services	330	320	320	320	320
Power	970	970	600	300	970
VELO Spare	100	100	0	0	0

**Table 3.**

Running and proposed M&O Cat.A budgets for 2012 and 2013 respectively and their evolution for 2014 - 2016 in kCHF. The VELO spare funding profile started in 2009 and ends in 2013.

### **Changes from 2012**

As already pointed out, main changes reflect the experience from the first three full data-taking year. Detector related costs, which have been reduced together with General services for 2012, has increased slightly in the 2013 - 14 years due to the foreseen long shutdown. In agreement with the SG, an updated spending profile in the Online Computing due to the running conditions of LHC, to the demanding LHCb physics programme and to our policy of acquiring computing power on “just-in-time” basis has also been set, with a clear timeline for transferring funds to the special Online account and for purchasing replacements.

As also pointed out by the SG chairman report (CERN-RRB-2012-114), we have delivered a detailed list of planned activities during the shutdown in 2013 and 2014. In spite of the activities planned and to be achieved during LS1, we have essentially kept the budget flat. In case of overspending, we plan to use buffered funds from previous years.

Other changes in the proposed budgets are minor apart from a readjustment of the power costs for the years following the long shutdown (~2/3 and 1/3 of the full 970 kCHF power cost). As announced in CERN-RRB-2011-088, EVO cost has been set to zero for 2013 and following years. Vidyo, technically and financially supported by CERN, will take over beginning 2013.

Proposed 2013	PhD eq. total/ funding auth.		M&O A	VELO	Power	Total
			kCHF	kCHF	kCHF	
			2,580	100	970	
	%	CHF	CHF	CHF	CHF	
BRAZIL	18	4.6	117,868	4,569	44,315	166,751
FRANCE	42	10.7	275,025	10,660	0	285,685
BMBF GERMANY	13	3.3	85,127	3,299	0	88,426
MPI, MPG, GERMANY	5	1.3	32,741	1,269	0	34,010
IRELAND	2	0.5	13,096	508	4,924	18,528
INFN ITALY	58	14.7	379,797	14,721	0	394,518
NETHERLANDS	17	4.3	111,320	4,315	0	115,635
P. R. CHINA	6	1.5	39,289	1,523	14,772	55,584
POLAND	8	2.0	52,386	2,030	0	54,416
HHNIPNE ROMANIA	7	1.8	45,838	1,777	0	47,614
RUSSIA	30	7.6	196,447	7,614	31,294	235,354
SPAIN	16	4.1	104,772	4,061	0	108,832
SWITZERLAND	25	6.3	163,706	6,345	0	170,051
UKRAINE	3	0.8	19,645	761	7,386	27,792
UK	73	18.5	478,020	18,528	0	496,548
USA	16	4.1	104,772	4,061	37,303	146,136
CERN	55	14.0	360,152	13,959	0	374,112
TOTAL	394	100.0	2,580,000	100,000	139,993	2,819,993

**Table 4.**

Sharing of the proposed Category A M&O budget, power and VELO Spare for 2013.

## Category B M&O

Category B M&O budget for 2012 is given in Table 5. The total is 1066 kCHF, a bit less than half of the M&O Cat.A total. Table 6 shows the funds per FA. Here we have not included contributions smaller than 10 kCHF.

CALO (CERN, ES, FR, RO, RU)	315
Level_0 (FR, IT)	60
Muons (CERN, IT, RU)	151
On Line (CERN)	80
Outer Tracker (GE, NL, PL, PRC)	120
RICH (CERN, IT, UK)	125
Silicon Trackers (CH, ES, GE, UKR)	80
VELO (CERN, CH, EI, NL, RU, UK, USA)	135

**Table 5.**  
Category B M&O budget for 2012 in kCHF.

CERN (CA, MU, ON, RI, VE)	220
CH (STs, VE)	81
ES (CA, STs)	35
FR (CA, L0)	140
GE (OT, STs)	93
IT (L0, MU, RI)	130
NL (OT, VE)	90
RU (CA, MU, VE)	115
UK (RI, VE)	135

**Table 6.**  
Category B M&O budget for 2012 in kCHF and per FA (>10 kCHF).

## Report on Common Fund and CORE expenses

### Situation at 31 August 2012

#### Common Fund

Spending from Common Funds further slowed down as foreseen (see CERN-RRB-2011-038). The amounts seen for “VELO NON CORE” is the result of the VELO-spare programmes. In order to preserve liquidity, a loan of 150 kCHF was established from Common Funds to “VELO NON CORE” (see also CERN-RRB-2010-115). The VELO spare programme will end in 2013.

Considering all the lines shown in Table 1, 291 kCHF is still uncommitted at present (August 2012). We do not expect any cash flow problem.

In view of the long shutdown in 2013–14 and of the foreseeable important interventions on sub-detectors and on general safety and infrastructure, we asked and obtained to maintain the Common Fund account active until the year 2013, see CERN-RRB-2010-040 and CERN-RRB-2010-115.

COMMON FUNDS, 31 August, year 2012				
All in kCHF				
Detector	Outflow	Inflow	Committed	Totals
OTR	0	0	0	0
CALO	0	0	0	0
DAQ	0.1	0	0	0.1
INFRASTRUCTURE	2.4	0	0	2.4
MUON	0	0	0	0
RICH	0	0	0	0
TOTAL	2.5	0	0	2.5
RICH HPDs	0	0	0	0
VELO NON CORE	7.4	0	0	7.4
	9.9	0	0	9.9

**Table 1: Status of Common Fund as at 31 August 2012 in kCHF**

#### Core

Most of the Core spending came to an end in 2006. Purchasing for DAQ and data storage has continued throughout 2010 with the 3<sup>rd</sup> “tranche” of the FARM, which has been achieved in December 2010 and which has been funded by Core and non-Core resources.

No institute has indicated that it has additional requests for funds to be presented to the RRB.