

Resources Review Board 31/10/2012

- Core and Common Funds in 2012

- M&O Cat.A received funds for 2012 and status
- M&O Cat.A projected budgets for the coming years
- M&O Cat.A proposed 2013 budget
 - M&O Cat.A special account for Comp./Proc./Lan sub-line
 - Carry-over from 2011

- M&O Cat.B status

Core

Most of the Core spending came to an end in 2006. Purchasing for DAQ and data storage was important throughout 2010 with the 3rd “tranche” of the FARM, which has been achieved in December 2010 and which has been funded by Core and non-Core resources. Spending from Common Funds is limited now essentially to Infrastructure, as foreseen.

No additional requests for funds to be presented to RRB.

A 300 kCHF is still uncommitted at present (August 2012).

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 have asked (see CERN-RRB-2010-040 and -115) for an extension of the Common Funds lifetime to year 2013.

Common Funds situation at end of August 2012

COMMON FUNDS end of August, year 2012				
All in kCHF				
Detector	Outflow	Inflow	Committed	Total
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

Spending from Common Funds is limited now essentially to Infrastructure, as foreseen.

The amount seen for “VELO NON CORE” is the result of the VELO-spare programme. This programme is financed using the M&O Cat.A framework and will end in 2013, summing a total amount of 500 kCHF.

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Category A M&O received funds for 2012

About **83%** of the expected contributions for M&O Cat.A in 2012 has been received at present. That is a total of ~2.3 MCHF (including Velo spare and Power). Together with the carryover of funds and a few late payments from 2011, these contributions have ensured that there has been no cash flow problem.

Category A M&O status for year 2012 (end of August, main lines, in kCHF)

2012	Budget	Used
Detector related	880	524.3
Secretariat	185	125.0
Communication	50	15.5
Core computing	150	87.1
Online computing	900	422.5
Test beams	30	8.1
Laboratory	50	23.8
General services	330	209.5
 Totals	 2,575	 1,415.8

2012 is the **third full operation and data taking year**. All lines follow expected average values. Core computing shows a stabilization. As already noted for the 2010 and 2011 exercises (CERN-RRB-2011-040), Detector related and General services confirm a slowing down during “operation years”, which has followed well our related budget decreases (-70 kCHF). We do not expect large fluctuations of these lines inside an essentially constant total budget.

Basic principle of our M&O Cat. A policy

- Keep budget as constant as possible:

- foresee what is foreseeable and budget for it;

- smooth as much as possible Online CPU replacement needs (“just-in-time” principle) and, in any case, smear their cost over a few years;

- provide a mechanism to compensate between “collision years” and “shutdown years” (at the moment first are cheaper than last);

- as LHCb is running to optimize physics throughput, effects on the related expenditures have to be carefully studied and taken into account for the coming years budgets.

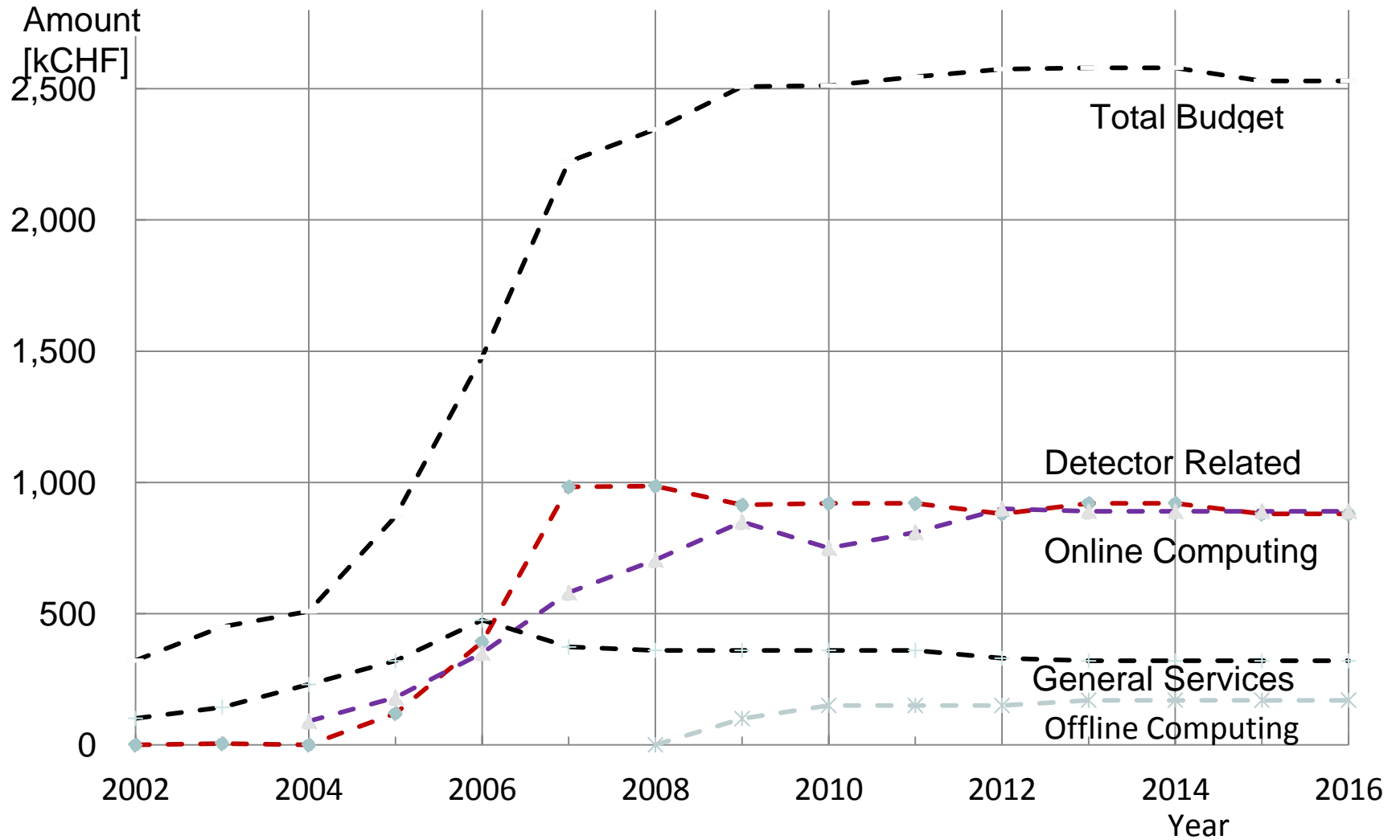
Updated M&O A forecast (without VELO and Power) in kCHF:

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Detector related costs	986	914	920	920	880	920	920	880	880
Secretariat	192	192	192	185	185	185	185	185	185
Communications	12	12	50	30	50	10	10	10	10
Core Computing	0	100	150	150	150	170	170	170	170
Online Computing	705	850	750	810	900	890	890	890	890
Test beams, cal. facilities	30	20	30	30	30	35	35	25	25
Laboratory operations	60	60	60	60	50	50	50	50	50
General services	360	360	360	360	330	320	320	320	320
Total	2345	2508	2512	2545	2575	2580	2580	2530	2530

Budget kept constant, except for a small difference between running and shutdown years. Detector related and General services lines have been decreased to best fit the present estimates. Communication takes in account 0 CHF for Vidyo (no more EVO from 2013).

Online Computing maintenance part takes in account the decision to complete the farm for the end of 2010, the 2011-12 LHC running conditions, the LS1 plan and the replacement model, specific to LHCb.

Budgeted expenditures for some M&O Cat.A main lines



Approved 2012 Category A M&O Budget

2012	PhD eq. total/ funding auth.		M&O A	VELO	Power	
			kCHF	kCHF	kCHF	
			2,575	100	970	Total
	%	CHF	CHF	CHF	CHF	
BRAZIL	18	4.9	126,294	4,905	47,575	178,774
FRANCE	43	11.7	301,703	11,717	0	313,420
BMBF GERMANY	14	3.8	98,229	3,815	0	102,044
MPI, MPG, GERMANY	7	1.9	49,114	1,907	0	51,022
IRELAND	2	0.5	14,033	545	5,286	19,864
INFN ITALY	55	15.0	385,899	14,986	0	400,886
NETHERLANDS	13	3.5	91,213	3,542	0	94,755
P. R. CHINA	3	0.8	21,049	817	7,929	29,796
POLAND	8	2.2	56,131	2,180	0	58,311
HHNIPNE ROMANIA	4	1.1	28,065	1,090	0	29,155
RUSSIA	31	8.4	217,507	8,447	34,716	260,669
SPAIN	17	4.6	119,278	4,632	0	123,910
SWITZERLAND	24	6.5	168,392	6,540	0	174,932
UKRAINE	3	0.8	21,049	817	7,929	29,796
UK	66	18.0	463,079	17,984	0	481,063
USA	9	2.5	63,147	2,452	22,527	88,126
CERN	50	13.6	350,817	13,624	0	364,441
TOTAL	367	100.0	2,575,000	100,000	125,962	2,800,962

Proposed 2013 Category A M&O Budget

2013	PhD eq. total/ funding auth.		M&O A	VELO	Power	
			kCHF	kCHF	kCHF	
			2,580	100	970	Total
		%	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

Footnote to previous slide

2009	324.5
2010	351
2011	357
2012	367
2013	394

Number of PhD equiv. keeps increasing;

Numbers for USA include recent members and associate members;

2013 is the last payment year for the Velo Spare Programme;

If LHC schedule is confirmed:

in 2014, the power will be rebated to $\sim 2/3$ of the present number (partial running in 2013);

in 2015, the power will be rebated to $\sim 1/3$ of the present number (full stop year in 2014).

Budget 2011 main lines (without VELO and Power)

ONLINE replacements

- Most of our carry-over funds come from our online replacements policy (replace only when needed in a constant budget). In order to buffer these funds for future FARM needs, we set-up a special account. The expenditures on this account need to be cross-signed by the Director of Research. Following our replacement model, we have “parked”:

400 kCHF plus 300 kCHF (in agreement with the SG).

Carry-over from 2011

- With 700 kCHF in the special account , we consider to not have any carry-over from 2011 (see also CERN-RRB-2012-114 from the SG).

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- M&O Cat.B status

Category B M&O status

Requested Cat. B M&O 2012 budget is given in the Table. The total is ~1066 kCHF, a bit less than half of the M&O Cat.A total. Category B M&O spent funds show to be constant over time inside ~10% .

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

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

Cat. B M&O requested budgets for 2012 in kCHF and per FA (>10 kCHF)

M&O Cat. B REQUESTS 2010 - 2012 and Projected preliminary 2013 - 2016

TABLE 1 M&O Cat. B REQUESTS 2010 - 2012 and PROJECTED PRELIMINARY 2013 - 2016

	2010	2011	2012	2013	2014	2015	2016
Mechanics	111	65	65	110	110	65	65
Gas-system	10	10	10	10	10	10	10
Cryo-system	0	0	0	0	0	0	0
Cooling system	15	15	15	15	15	15	15
FE electronics	124	125	125	125	125	125	125
Standard electronics, PS (LV, HV), Crates, RO Modules	229	224	224	250	250	224	224
Controls, (DCS, DSS)	68	70	71	70	70	60	60
Sub-Detector Spares	200	200	170	200	200	170	170
Maintenance of clean rooms, active and passive storage (including rentals), workshops	45	45	45	45	45	45	45
Communications (Piquet tools (ACB, GSM, etc...))	31	37	36	30	30	30	30
Store Items (Materials (screws, washers, tools, etc...))	25	25	25	25	25	25	25
Hired Manpower @ CERN (in CHF (Industrial Support))	0	0	0	0	0	0	0
Technical Manpower @CERN (in FTE (Technicians from Collaboration Institutes))	290	295	280	300	300	280	280
Totals (CHF)	1148	1111	1066	1180	1180	1049	1049

All numbers in CHF. Actual funds may be managed by each institute (or project) in different currencies.

Conclusions

It is not easy to balance a constant budget in years, but our impression is that we are managing.

Due to our extreme running conditions, aggressive physics programme and somewhat changeable LHC schedule, our priority remains to preserve our resources and insure maximum efficiency.

Cat.A and Cat.B funded resources are prepared for LS1. The list of planned activities is impressive. We dare to go through this with essentially no budget increase.

Cat.B funds and resources are healthy and, as long as the commitment and the results are present, we are of the opinion that our sub-detector projects should still be in charge and that the specific national process of fund raising, to which all are subjected, should not be disturbed.