

TOTEM RRB OCTOBER 2019 :

M&O STATUS 2019

M&O BUDGET REQUEST 2020

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on behalf of the
TOTEM Collaboration

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RRB M&O 2019 : Cat.A and Cat.B contributions by funding agencies [book-closing September 2019]

M&O Cat.A	CERN	INFN	Finland	Kansas	Prague	CWRU	Hungary	AGH	W.Bohemia	TomskU.
Expected'19	106.500	94.667	35.500	23.667	35.500	23.667	23.667	23.667	35.500	23.667
TotToBeAllocated	106.500	94.667	35.500	23.667	35.500	23.667	24.650+23.667	23.667	35.500	23.667
Paid'19	106.500		35.500	23.667	35.500		24.650	23.667	35.500	23.667

M&O Cat.B	CERN	INFN	Finland	Kansas	Prague	CWRU	Hungary
Expected'19	53	50	0	2	5	15	3
TotToBeAllocated	53	50	0	2	5	15	3
Allocated'19	53	50	0	2	5	15	3

- * M&O A: AGH: contribution being transferred to CERN.
- * M&O A: Hungary: 2018 contribution received; 2019 contribution allocated to be paid early in 2020.
- * M&O A: INFN: contribution is going to be transferred to CERN starting from the second half of October.

M&O STATUS 2019 - SUMMARY**TOTEM Category A:**

- **31 Aug: book-closing: TOTEM figures are consistent with FI Dpt .**
- **31 Aug: no outstanding contributions from previous years as Hungary has paid the remaining 2018 contribution.**
- **30 Sep: payments of 2019 contributions are well advanced, including INFN contribution expected starting from second half of October.**
- **30 Sep: some annual forfait contracts (secretariat, maintenances, etc.) still to be paid after Aug.**
- **31 Dec: Carry over still necessary in the next couple of years to support PJAS.**
- **31 Dec: projections indicate yearly book-closing expected on balance.**

TOTEM Category B:

- **All contributions received and managed by home institutes.**
- **TOTEM institutes' contributions to PPS directly managed under CMS M&O B budget.**

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The total M&O budget envelope remains as in 2019 significantly reduced according to the projections agreed with the SG for the years of LHC shutdown. Some extra costs from support divisions were absorbed in the current budget. The table of projections will continue to be updated with the SG to reflect the TOTEM needs and expenditures profile.

	Request 2020
A: TOT DETECTORS RELATED COSTS	116K
A: TOT SECRETARIAT	44K
A: TOT COMMUNICATIONS	3K
A: TOT CORE COMPUTING	92K
A: TOT ONLINE COMPUTING	78K
A: TOT TESTBEAMS, CALIBRATION	33K
A: TOT LABORATORY OPERATIONS	13K
A: TOT GENERAL SERVICES	47K
<u>A: TOTAL =</u>	<u>426K</u>

TOTEM Cat.B contributions remain reduced as in 2019 because of the removed detectors.

<u>B: TOTEM =</u>	<u>128K</u>
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Maintenance & Operation Cat. A:

M&O expenses that are shared by the entire collaboration.

The sharing is based on the proportion of scientific staff in the collaboration holding PhD or equivalent qualifications who are entitled to be named as authors of scientific publications of the collaboration.

2020 [kCHF] :

CERN	INFN	Finland	Prague	CWRU	Hungary	AGH	W.Bohem.	KansasU.	TomskSU
<i>9 / 37</i>	<i>8 / 37</i>	<i>3 / 37</i>	<i>3 / 37</i>	<i>2 / 37</i>	<i>2 / 37</i>	<i>3 / 37</i>	<i>3 / 37</i>	<i>2 / 37</i>	<i>2 / 37</i>
24.32%	21.62%	8.11%	8.11%	5.41%	5.41%	8.11%	8.11%	5.41%	5.41%
103.622	92.108	34.541	34.541	23.027	23.027	34.541	34.541	23.027	23.027

Maintenance & Operation Cat. B:

M&O expenses that are borne by part of the collaboration, i.e. by single institutes or groups of institutes, and their Funding Agencies.

The headings in this category are defined with reference to the distribution of responsibilities amongst the various institutes for the construction of the detector.

The sharing is based on the proportions of the original investment.

SUB-DETECTOR	Responsibilities						KFKI
	CERN	INFN	Helsinki	Kansas	Prague	NSF	
Roman Pots							
Mechanics + Installation	85% = 25k				15% = 5k		
Si Detectors	73% = 12k					27% = 4k	
Electronics	50% = 16k			5% = 2k		35% = 11k	10% = 3k
T1 Detector							
CSC Detectors		100% = 12k					
Electronics		90% = 27k				10% = 3k	
Supports + Services	90% = 22k	10% = 3k					
T2 Detector							
GEM Detectors			100% = 12k				
Electronics		100% = 28k					
Supports + Services	50% = 6k		50% = 6k				
DAQ							
Read-out Column		100% = 50k					
TOT = 128 kCHF	53k	50k	0k	2k	5k	15k	3k

ACKNOWLEDGEMENTS

- TOTEM is grateful to the RRB, LHCC, Funding Agencies and CERN Management, which helped the collaboration for the production and publication of its 2.76 TeV and 13 TeV physics results. TOTEM is looking forward to their support during LS2 in order to complete the physics program in LHC Run 3.
- TOTEM is also grateful to CMS for the fruitful collaboration on the PPS operation, integrated luminosity and data analysis, for the joint papers currently in publication, as well as for the collaboration on the 90m joint-run data analysis.
- TOTEM acknowledges the LHC groups for the developments of large β^* optics on the accelerator and in particular for the successful 900 GeV operation, for which the data quality has been verified and the data analysis is progressing.
- TOTEM is grateful to the Scrutiny Group for the help and support in the finalization of the 2020 M&O budget requests.