



HFM
High Field Magnets

HFM Annual Meeting

HFM budget and financial situation

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of the HFM Programme Office



Introduction

- This presentation will show the budget status as in Oct. 2023, namely the budget (2021-2027) after receiving the updated cost estimate from all WP leaders (it is fully in line with the last version of the Master Plan)
- The contribution of the different collaborations has also been updated with respect to deliverables and new signed collaborations
- The budget is monitored using **Earned Value Management (EVM)**, a tool used to report on the budget progress within the HFM Programme, following the HFM structure by RD and WPs



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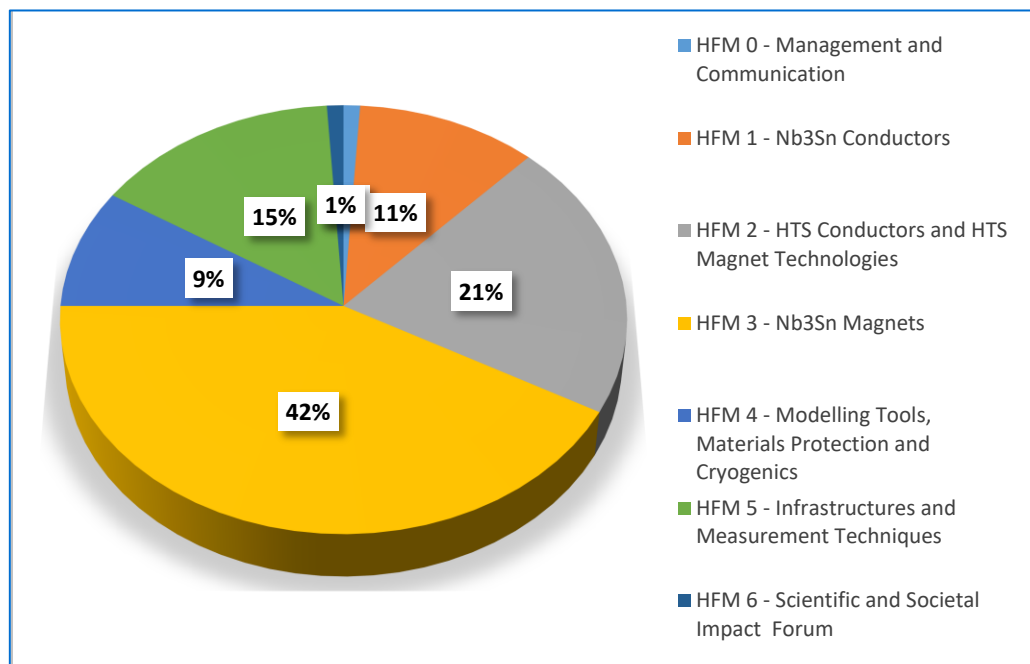
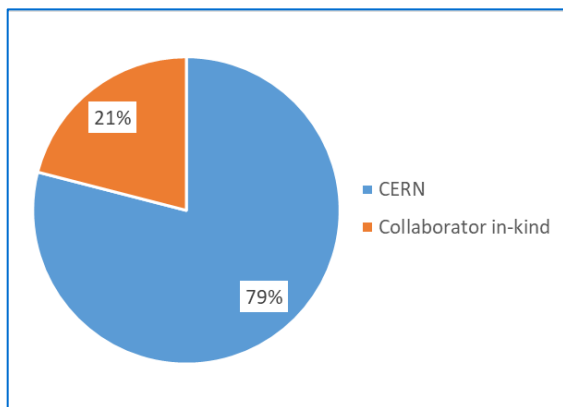
- Cost estimate (EVM planned value) 2021-2027
 - by funding
 - by category
- HFM commitments
- Collaborations
 - existing/completed
 - Future/in the pipeline
- HFM programme Cost to Completion
- Conclusions



HFM project EVM Planned Value 2021-2027 *by funding and per RD*

Budget material + personnel (in kCHF)

RD line	CERN	COLLABORATOR IN-KIND	Total	Percentage
HFM 0 - Management and Communication	935	0	935	1%
HFM 1 - Nb3Sn Conductors	15'392	2'058	17'450	11%
HFM 2 - HTS Conductors and HTS Magnet Technologies	26'022	6'913	32'935	21%
HFM 3 - Nb3Sn Magnets	43'451	23'260	66'711	42%
HFM 4 - Modelling Tools, Materials Protection and Cryogenics	14'386	450	14'836	9%
HFM 5 - Infrastructures and Measurement Techniques	23'951	395	24'346	15%
HFM 6 - Scientific and Societal Impact Forum	429	0	429	1%
Total	124'566	33'076	157'642	100%



HFM project EVM Planned Value 2021-2027 by category

Definition of categories

In EVM, the following categories are used to monitor the resources

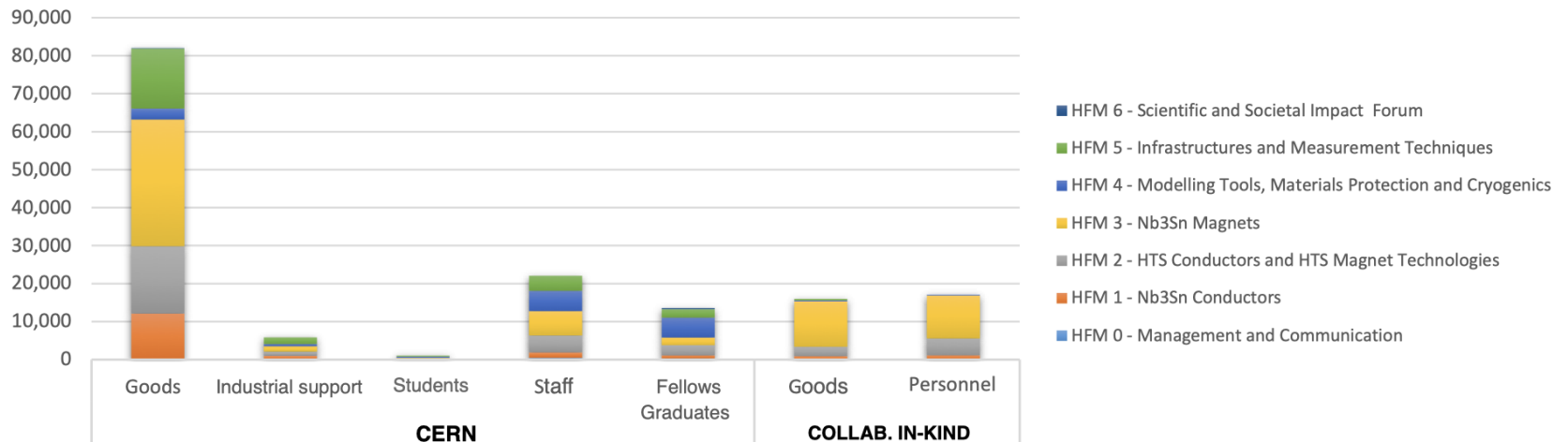
- For the **CERN WPs**:
 1. CERN STAFF (employed member of personnel)
 2. CERN non-STAFF Personnel, which includes
 - Students (doctoral and technical students)
 - Fellows/graduates - personnel with a higher education degree
 - Industrial support
 3. CERN Material (goods)
- For the **Collaboration WPs** (existing collaborations and future potential collaborations)
 1. CERN in kind (the M+P contribution of CERN to the collaboration)
 2. CERN monetary (the amount of invoices paid to the collaborator)
 3. Collaborator in-kind material
 4. Collaborator in-kind personnel



HFM project EVM Planned Value 2021-2027 by funding and by category

Budget material + personnel by category (in kCHF)

Funding	Account	Total up to 2027	Percentage
CERN		124'566	79%
	Goods	82'012	52%
	Staff	22'063	14%
	Non Staff Personnel	20'490	13%
COLLABORATOR IN-KIND		33'076	21%
	Goods	15'978	10%
	Personnel	17'098	11%
Total		157'642	100%

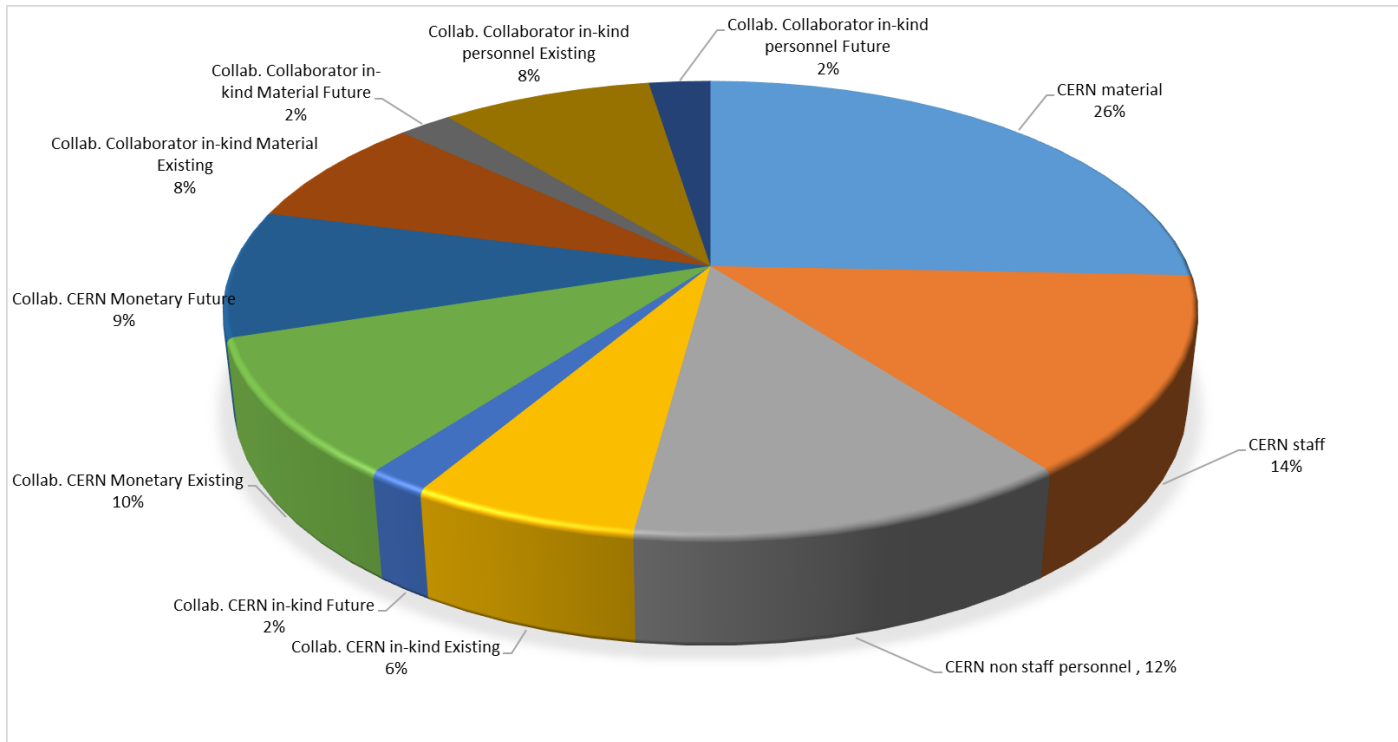


HFM project EVM Planned Value 2021-2027 by category

Budget material + personnel (in kCHF)

Category	Total up to 2027
CERN material	40'451
CERN staff	22'063
CERN non staff personnel	19'627
Collab. CERN in-kind Existing	10'115
Collab. CERN in-kind Future	2'746
Collab. CERN Monetary Existing	15'345
Collab. CERN Monetary Future	14'219
Collab. Collaborator in-kind Material Existing	12'627
Collab. Collaborator in-kind Material Future	3'351
Collab. Collaborator in-kind personnel Existing	13'237
Collab. Collaborator in-kind personnel Future	3'861
Grand Total	157'642

} 52%



Collaborations

Budget material + non-staff personnel (in MCHF)

Total contributions from collaborations,
with CERN and collaborator breakdown

Collaborations	CERN	Collaborator in-kind	Total
Ongoing	22.042	19.597	41.639
Completed	3.363	6.267	9.630
Future (in the pipeline and forecast)	10.990	6.500	17.490
“Industrial contract”	5.185		5.185
Total	41.58	32.364	73.944



HFM commitments

Budget material + non-staff personnel (in kCHF)

Category	Committed	Not committed	Total budget
CERN non staff personnel	6'173	13'454	19'627
CERN material	10'120	30'331	40'451
Collaboration CERN in-kind	1'980	10'881	12'861
Collaboration CERN Monetary	16'819	12'745	29'564
Collaboration Collaborator in-kind material	13'306	2'672	15'978
Collaboration Collaborator in-kind personnel	13'805	3'293	17'098
Total budget	62'203	73'376	135'579

RD line	Committed	Not committed	Total budget
HFM 0 - Management and Communication	460	0	460
HFM 1 - Nb3Sn Conductors	5'159	10'850	16'009
HFM 2 - HTS Conductors and HTS Magnet Technologies	12'621	15'875	28'497
HFM 3 - Nb3Sn Magnets	31'776	28'512	60'288
HFM 4 - Modelling Tools, Materials Protection and Cryogenics	3'392	6'116	9'508
HFM 5 - Infrastructures and Measurement Techniques	8'691	11'698	20'389
HFM 6 - Scientific and Societal Impact Forum	103	326	429
Total budget	62'203	73'376	135'579

Commitments include the collaborations, namely all the payments (also those occurring in the future).

Earned Value: 20.7 MCHF

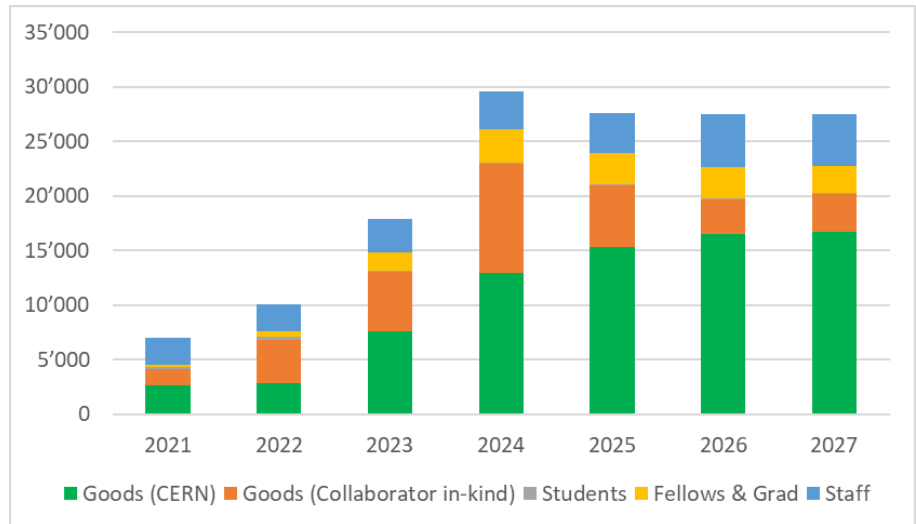


Cost to completion [kCHF]

EDMS#2910195

Total CtC: 147.124 MCHF

Comparing to the cost estimate we observe an overshooting on about 10 MCHF (difference mainly explained by the CERN material and non-staff personnel)



Type	Funding	2021	2022	2023	2024	2025	2026	2027	Total
Goods	CERN	2'610	2'854	7'636	12'957	15'357	16'480	16'730	74'624
Goods	In-kind	1'558	3'916	5'440	9'949	5'589	3'222	3'402	33'076
Students	CERN	133	304	75	179	134	104	134	1'063
Fellows & Grad	CERN	217	512	1'675	3'059	2'851	2'816	2'458	13'588
Staff	CERN	2'472	2'464	3'019	3'466	3'628	4'904	4'820	24'773
Total		6'990	10'050	17'845	29'610	27'559	27'526	27'544	147'124



Conclusions

- EVM is used to monitor HFM program (wrto scope, time and cost)
- The related structure is aligned with the definition of RD lines and work-packages
- The current baseline integrates the latest update and will be used to monitor the future progress and identify delays if any
- Compared with the Cost to Completion, we observe an overshooting of about 10 MCHF
 - some activities to be reprofiled/delayed
 - strategy to be agreed within the HFM Steering Committee

