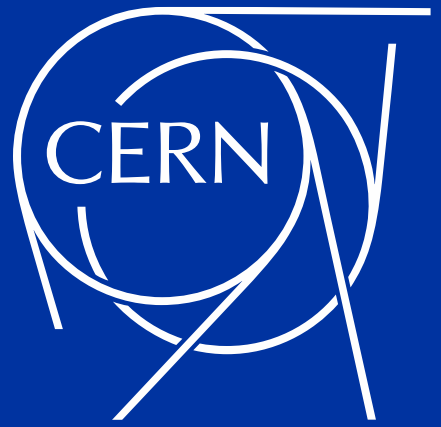


5th CTT2SB Reporting

Alessandro MASI for CTTB Chairs

31/05/2024

From the CTTB chairs, thanks a lot to the CTTB scientific secretaries, CTTB representatives, working groups' chairs, forums' conveners and to all the participants to forums, working groups, reviews and workshops.

Without them, all the progress made would never have been possible!

A deep thank to Etienne for the outstanding and intense contribution to the CTTB organisation, operation and life !

Progresses reported today have been possible thanks to his hard work over the last six months… It is really difficult to realise that he is leaving CERN…

It has been a pleasure and an honour to share this exciting journey with him …

…Together with the new co-chairs we will continue to honour his heritage !

Agenda

Open Actions

Initiatives to be endorsed by CTSB

Open ones

- White-Rabbit Timing Deployment during LS3
- Controls Data Analysis Framework
- Hardware Crates production

New Ones

- FGC 4 review recommendations
- Common SoC framework in the ATS sector
- Future front-end platform
- UNICOS review recommendations

Agenda

Ongoing initiatives

- SoM task force
- Debian as OS for FEC
- CESAR renovation

Incoming initiatives

- WRAP & PyUI Review
- Wireless fieldbus
- Copper to fibre

Shared GRAD requests status

CONS Requests Endorsed by the CTTB

Status ATS-IT initiatives triggered by CTTB

AOB

- CTSB/CTTB structure review: CF vs WG

Open actions

Open actions follow-up

Action 4.1: [CTTB] Produce the summary of approved consolidations to be presented at CTTB.

- CONS requests for SY-RF, EN-CV and EN-HE presented at CTTB and endorsed. SY-BI scheduled at the next CTTB.
- See today reporting for more details.

Action 4.2: [CTTB] NXCALS strategy for supporting storage of large amounts of data (3.4) - Organise a presentation at CTTB once all input has been gathered.

- ATS-IT NXCALS Review plan presented at the 40th CTTB [https://indico.cern.ch/event/1374602/]
- Purpose: Collect needs to ensure smooth operation of NXCALS through LS3 and Run4, plan provisioning IT infrastructures, development work and resources
- Timeline: 2024: Risk analysis, user requirements analysis, technology survey - 2025: Prototyping new technologies; definition of implementation phase

Action 4.3: [CTTB] Deployment plan for GMT & BST to be presented for approval at the next CTSB.

- White Rabbit Timing: Renovation of the General Machine Timing strategy document under approval in EDMS – Approval process ends on May 24th
- Report foreseen at the next CTTB 14/06/2024
- See today reporting for more details.

Open actions follow-up

Action 4.4: [CTTB] Clarify the End of Life situation for Swing.

- Discussion triggered by reporting on Accelerator and Beam Control GUI Strategy – Workshop Follow-up actions (Workshop Day 1, Workshop Day 2) at the last CTSB
- Clarified with Chris CSS strategy: Swing EoL is LHC EoL and not LS3 – In LS3 will be frozen but supported! CSS strongly recommend to no start new development with it
- Migration strategy for each equipment groups to be defined according to the resources available and CSS solutions roadmap – See today reporting on WRAP and PyUI review proposal for more details

Action 4.5: [CTTB] Provide input to R. Jones on the expected future needs for a hardware crate production facility.

- Needs collection performed by the CTTB and provided to Rhodri for ATSMB discussion
- MTP request for a 5-years post funded 50% Hostlab and 50% by ATS Departments formalized and approved in the 2024 MTP exercise
- BE-EA workshop activity is smoothly restarting – LS3 works are being planned
- Equipment groups are invited to contact G. Canali to discuss in detail the production plans

Open Initiatives

CTSB Endorsement Requests

Deployment White Rabbit Timing during LS3

Status	Next	Background	Reference

Ongoing	**14/06/2024**
	Progress report at CTTB
	
	12/2024
	Full stack availability
		• Included in EoL of legacy controls during LS3
		• Found too risky to renovate the entire complex during LS3.
		• Propose to reduce scope to LHC and SPS during LS3 and other machines during LS4.
		• Roadmap:
		  • **September 2024**: Lab testing starts by EQP groups
		  • **Q1 2025**: 3MeV Test Stand + pilot installations
		  • **September 2025**: GO / NO-GO for SPS renovation
		  • **Q4 2026**: Renovation campaign starts
		• EDMS approval of the proposal ended on May 24th (https://edms.cern.ch/document/3088857/1)
		• Proposal supported by CTTB pending validation of full stack (hardware & software) by users.
			Kick-off (13th CTTB)
			
			WR Status & Plan (29th CTTB)
			
			WR Status & Plan – Update (31st CTTB)
			
			WR Status & Plan – Update (40th CTTB)

CTSB Action	• Endorsement of proposed two-stages deployment strategy after CTTB report on 14/06/2024 in an off-line meeting		
Follow-up	• **Strategy to be approved by IEFC and LMC.**		

BST over White Rabbit

Status	Next	Background	Reference

On-going		• BST ov WR consolidation integrated in the WR Timing deployment strategy detailed in the overall EDMS document
		• BST renovation strongly depends on the readiness of RF over WR for the LHC – (CONS request endorsed by the CTTB)
		• CTTB GRAD for integration of BST functionalities in WR transmitters and receivers approved – Hiring in progress
		• Deployment strategy:
		  • Consolidation both in SPS and LHC
		  • Plan A:
		  ✓ WRENs will replace all BOBR modules
		  ✓ All VFC-HDs driven by the WREN in the same crate
		  • Plan B (Partial consolidation): replace only the BST-master in the CCR with a WREN
			GRAD Request (33th CTTB)

BST over White Rabbit

Status	Next	Background	Reference

On-going	**Q3-2024**
	CTTB Grad hired
	Q1-2025
	Lab Validation
		• Roadmap (to be revisited in Q1 2025):
		  • **Q1 2025:** Validation in the lab (comparison WREN vs BOBR and BST-master)
		  • **Q3 2025:** validation phase with beam in SPS and LHC (dedicated MDs)
		  • **Q4 2025:** Plan A / Plan B
		  • **Q4 2026:** Renovation campaign starts
			GRAD Request (33th CTTB)

CTSB Action	• Endorsement of the proposed deployment strategy		
Follow-up	• **Status report on the shared work at the CTTB every 6 months** • **Strategy to be approved by IEFC and LMC**		

Controls Data Analysis Framework

Status	Next	Background	Reference
On Hold 	CTTB GRAD to be hired by **Q3 2024** **Q1/2025** Feasibility study completed **Q1/2026** Release V1.0	• Many similar offline analysis tools developed in the last years by different users. Right moment to bring them together. • Focus on Offline data analysis, but also on Online data analysis. • Roadmap proposed to reach a V1.0 by LS3. • Initiative supported by BE-CSS, SY-BI & TE-MPE with commitment to collaborate to the delivery of a V1.0. • Scope enlarged to offline and online analysis. • Long term maintenance model clarified: Responsibility with BE-CSS	Kick off (21st CTTB) Intermediate Reporting (27th CTTB) Final Reporting (29th CTTB)
CTSB Action	• Define a strategy to make available 1 FTE missing STAFF in BE-CSS for the long term support		
Follow-up	• **Status report on the shared work at the CTTB every 6 months.**		

FGC4 review [https://indico.cern.ch/event/1380800/] outcome

Mandate

Critically analyse the advantages/disadvantages of the different options for the FGC4 project, in terms of compliance with **SY/EPC technical requirements**, and from the perspective of converging towards a **common I/O tier platform** for accelerator equipment control

Panel Members	Etienne Carlier (SY-ABT, Chair), Sophie Baron (EP-ESE), Hamza Boukabache (HSE-RP), Salvatore Danzeca (BE-CEM), Frederic Hoguin (BE-CSS), Ivan Romera Ramirez (TE-MPE)

Charge to the Review Panel

*"considering SY/EPC **constraints**, **synergies** with the DI/OT project and the potential to **enlarge** the DI/OT toolbox, …"*

1. *"…does the review panel **endorse** EPC's preferred option and strategy for the FGC4 project?"*
2. *"…are there **specific constraints** to be added to the FGC4 project?"*
3. *"…are there **additional tasks** that are needed (within the project, or beyond) in order to maximise synergies?"*
4. *"…what additional **technical / project risks** need to be considered by the FGC4 project?"*

FGC4 review outcome

Recommendations

1. SY-EPC to use Option C form-factor as new baseline for the design of the FGC4.
2. CTTB to launch, in complement of the SoC framework taskforce, an initiative to converge toward a common centrally supported solution for integration of SoM based on SoC within accelerator control stack.
3. BE-CEM & CSS to define the Service Level Agreement (SLA) for the support of SoC / SoM (hardware and software) within ATS with clear timelines for availability of the different services and estimation of the resources required for its implementation and support.
4. SY-EPC to setup a comprehensive roadmap (including hardware, software, firmware, Gateware) for the delivery of the operational control of the POPS/POPS+ by mid-2026.
   - This roadmap shall encompass a timeline with intermediate deadlines, a contingency plan and a manpower planning considering the adoption of either Option A, Option B or Option C.
   - For Option C, the roadmap should focus solely on the use of a common SoM solution approach, taking into consideration the specific timelines and constraints of all stakeholders associated with the development of the common SoM solution.

     - Hardware based on Option B will be delivered in 2024 (using DI/OT System Board)
     - Allows hardware, software and gateware to progress
     - POPS+ can be deployed using this solution if required. Easy change to Option C once SoM based solution is available.

5. CTSB / CTTB to define the responsibility and collaborative models for the use of the SoC technology within ATS.

CTSB Action

- Endorse Reviewers recommendations

SoC (System on Chip) Integration

Background

- Survey done by ECF to get the full picture of expectation of SoC users community.
- Clear request formulated for a generic SoC framework.
- Dedicated task force created
- Final report presented at the 37th CTTB:
  - Applications concerned:
    - ✓ 11 different ones among SY-BI, EPC,ABT, BE-CEM with deployment deadlines mostly LS3
    - ✓ Number of deployed units could reach the current number of deployed FECs, i.e. ~3000
  - Two SoC usages identified:
    - ✓ peripheral component of a FEC (No OS only bare metal applications)
    - ✓ FEC like [favoured solution by SY-ABT,BI,EPC and HSE]
  - Common solution proposed:
    - ✓ Hardware:
      - ➢ Standardized SoC family and model
      - ➢ Reference PCB design inspired to the DI-OT system board
      - ➢ Centrally supported booting solution
    - ✓ Low Level Software Framework
      - ➢ OS: FEC OS with a dedicated supported kernel – EDGE for driver development
      - ➢ Gateware reference design to simplify the RT applications development
      - ➢ Internal monitoring with centrally supported libraries
      - ➢ Timing synchronization based on NTP and PTP

Project	Section	SoC number	Deployment	HW Platform
LHC BGI	SY-BI-XEI	4, up to 14	LS3	TBD
MCOI	SY-BI-PM	25	TBD	TBD (SoM)
LHC BPM	SY-BI-BP	300, up to 600	LS4	TBD (SoM)
HL-LHC BPM	SY-BI-BP	32, up to 45	LS3	RFSoC SoM
DKFC	SY-ABT-BTE	40	LS3	DI/OT
FGC4	SY-EPC	100,800,1000 +	LS3 and beyond	TBD
FSI	BE-CEM-EDL	18+10 (test)	LS3	DI/OT
WRSv4	BE-CEM-EDL	100+	LS3	EDA-04571
Motor Driver Gen 2	BE-CEM-EDL	~250	LS3	DI/OT
CROME Upgrade	HSE-RP	~500	LS3	TBD
MSC Platform	TE-MSC-TM	~30	TBD	TBD

Reference

Soc use within ATS (30th CTTB)

SoC Taskforce mandate (31st CTTB)

SoC Taskforce Mid-Report (34th CTTB)

SoC Taskforce Final-Report (37th CTTB)

SoC Integration

Status	Next	Background
Ongoing 	**06/2024** Project proposal approval process ending **14/06/2024** CTTB Report	✓ CERN Control System Integration ➢ FESA framework for applications development and data communication ➢ Standard FECs services for monitoring and configuration (CCS, COSMOS and LUMENS) ✓ Support Model: Central – BE-CEM for low level framework and BE-CSS for CCS integration and Sys Admin • Strategic Point: As for the FECs, it is expected to remotely reset the SoCs and update the kernel and distribution once per year- This implies to readapt and revalidated also the Programmable Logic part ! It is responsibility of each equipment group to evaluate the best SoC usage • Project proposal document under approval in EDMS https://edms.cern.ch/ui/#!master/navigator/document?D:101533750:101533750:approvalAndComments • Milestones Plan, development and long-term resources estimated by CEM/CSS
CTSB	• Endorse the proposed SoC Strategy within ATS	
Action	• Project approval in an CTSB off-line meeting after EDMS approval process ends (end of June)	

SoM (System on Module) Initiative

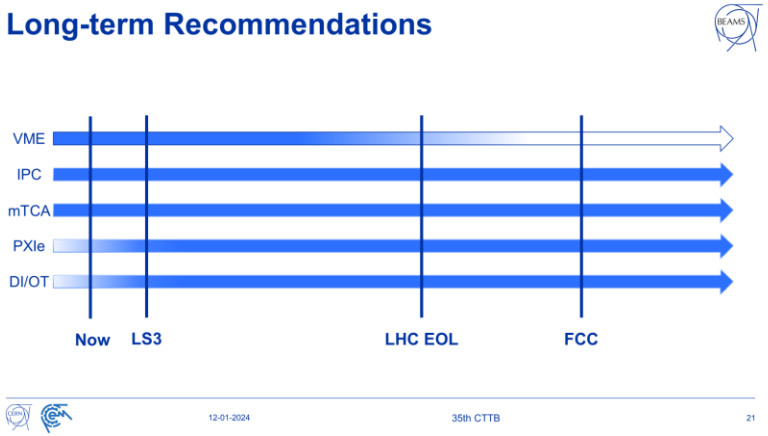
Status	Next	Background	Reference

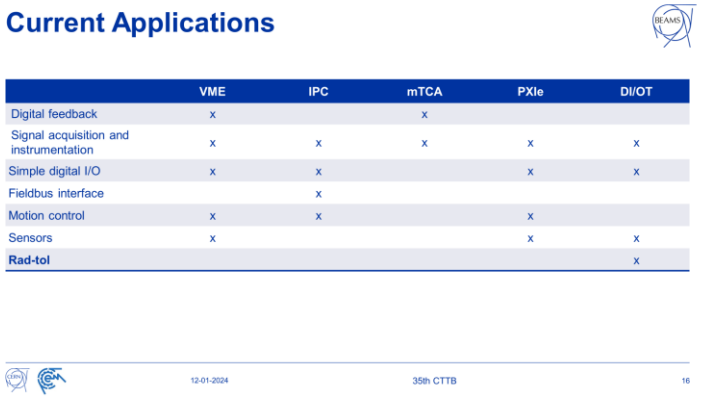
On-going 	SoM Task Force final report 42nd CTTB – 14/06/2024
	
	Project definition and resources identification July 2024
		• FGC4 review and eq. groups reporting to the CTTB identified SoC needs not fully fulfilled with DI-OT
		• Task force set up with the following mandate:
		  • **Goal**: identify a generic common board to host the SoC family and related peripherals recommended by the SoC task force
		  • **Scope**: All the ATS SoC applications and users in radiation free environment that could not profit of the DI-OT complete ecosystem
		  • **Deliverables**: Common solution strategy, roadmap, resources estimation, Risks and ROI
		• Task force mandate linked to the SoC task force recommendations but not to the FGC4 review (i.e. POPS+ project timeline)
		• SoM integration and long-term support efforts are included in the SoC framework estimation as far as SoC task force recommendations are considered
			SoM Task Force Mandate (40th CTTB)
			
			SoM Task Force Progress Report (41st CTTB)

CTSB Action	• Project approval foreseen in August/Sep 2024		

Future Front-End Platform

Status	Background	Reference
On-going	• Following the 2016 criteria & requirements survey 5 front-end platforms today supported by BE-CEM (VME, IPC, µTCA, PXIe, DI-OT). EoL and future strategy presented	CEM low-level controls platforms long-term offer (35th CTTB)





- Only SY-BI expressed interest to explore new platforms out of the current offer for CONS projects. According to the current BI strategy to adopt SoM as FEC like peripherals, already supported platforms as PXIe or DI-OT, but in 6U format, could be adopted.

CTSB Action	• Endorse the proposed strategy

Hybrid Control Solution

Status	Next	Background	Reference
Ongoing 	**22/11/2023 & 29/11/2023** UNICOS Review	• Industrial & Accelerator Controls stacks are complementary with some overlaps. • Evolution of both Controls stacks must be kept coherent and pushed for further integration. • Criteria unclear for stack selection (identification of systems on one stack that should be on the other, split between two stacks, on other stacks…). • Fieldbuses and PLC initiatives part of the process. • UNICOS layer needs consolidation and redesign. • Launch a review to demystify UNICOS, identify the missing features and/or shortcomings preventing equipment groups to use it, produce recommendations on when it should be used.	Industrial Control Technology Stack (11th CTTB) UNICOS overview and strategy (19th CTTB) UNICOS Consolidation and Redesign (EDMS 2818492) Review (Part 1) Review (Part 2)
CTSB Action	• For info		
Follow-up	• **Establish guidelines on the use of WinCC-OA as GUI solution for/in hybrid systems**		

UNICOS review outcome

Charge to the Review Panel

- Does the UNICOS framework fit the requirement of current users?
- Is the consolidation and redesign proposal suitable to secure the evolution of the UNICOS framework up to the end of the HL-LHC?
- Could UNICOS evolve to be of more general use?

Panel Members Etienne Carlier (SY-ABT, Chair), Mauro Nonis (EN-PAS), Marco Pezzetti (TE-CRG), Chris Roderick (BE-CSS), Lukasz Zwalinski (EP-DT)

Recommendations

- UNICOS team to establish a strategy and a roadmap for the evolution of the framework up to the end of the HL-LHC era and for the evolution after the HL-LHC era
  - **Short-term (LS3)**: UNICOS team to focus on optimizing the existing functionalities, ensuring stability, and addressing technical debt within the current framework.
  - **Medium-term (~LS4):** UNICOS team to concentrate efforts on further refinements of the framework and tools, as well as consulting, to help align the various UNICOS integration and usage practises of existing users.
- UNICOS team to reorganize the steering committees User Technical Committee (UTC) and User Advisory Committee (UAC) to focus on both short / medium-term framework operation and evolution (up to end of HL-LHC era), and on long-term strategy (post HL-LHC era).

UNICOS review outcome

Recommendations

- This adjustment should help:
  - To keep the effective operational governance in place
  - To refine the scope and strategy for the UNICOS framework in the future. Strategies shall be endorsed by relevant bodies (CTTB, CTSB, Dept Head….) before implementation.
- UNICOS team, TE-VSC, HSE, EN-AA, EN-EL… to collaborate to jointly review their shared requirements and identify potential convergence options toward a unified solution for the post HL-LHC era.
- UNICOS team to explore the possibility of including the UNICOS framework as an add-on to WinCC-OA, SIEMENS-PLC and SCHNEIDER-PLC by consulting with KT.
- UNICOS team to thoroughly evaluate the possible strategies to diminish dependency on WinCC-OA, considering the development of a Plan B.
- CTSB / CTTB to initiate a review of the SCADA (Supervisory Control and Data Acquisition) recommendation for ICS at CERN.
- SY-ABT and SY-RF to critically analyse the feasibility of utilizing the UNICOS framework for controlling their ICS-based equipment.

CTSB Action

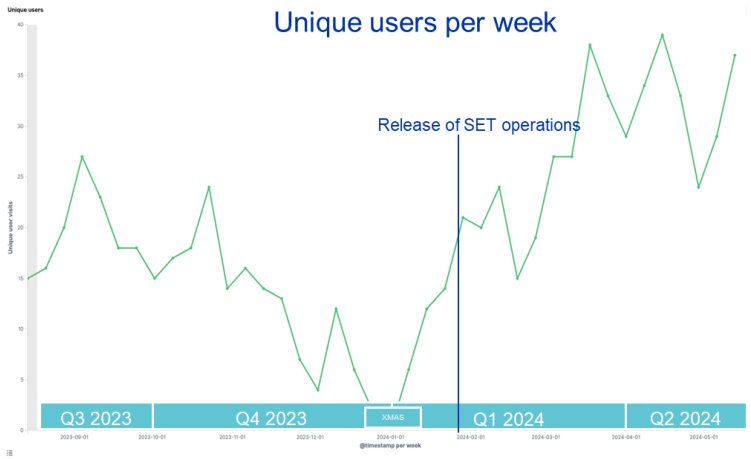
- Endorse Reviewers recommendations

On-going Initiatives

	Initiative	Status	
2	LS3 EoL of legacy control		Roadmap approved by CTTB and GLs. Now in implementation phase. Follow-up at the CTTB every 6-months
4	Debian as OS for FEC		Status update report at the CTTB every 2 months. Validation phase by equipment groups well advanced: SY-BI terminated, SY-ABT, EPC close to the end, SY-RF not started yet (lack of resources) - FECHW – FEC HardWare Description developments presented at the ECF with CCDE Demo – EDGE v4 released
6	Use of Fieldbuses in Equipment Controls		Recommendation for industrial fieldbuses presented by ICCF. Recommendation for common electronic fieldbuses from ECF presented at the 36th CTTB - 2024/02/02 – CEM supported Field Buses SLA presented at the 36th CTTB - 2024/02/02
7	Use of PLC in Equipment Controls		Survey results presented. Review of recommendation in preparation.
9	Common EAM eLogbook		On-Hold. Converging toward a common eLogbook for technical services and fire brigade. Missing GRAD for TI logbook development. Now it is based on old technology supported by BE-CSS (high risk). Roadmap toward one single eLogbook for operation and technical services still to be found.
10	CESAR renovation		Ongoing. Move toward generic CSS solution in progress. CESAR virtual device server consolidation plan presented at the 38th CTTB - 2024/03/15. Definition of responsibility for hybrid FESA classes on-going – Report at the next 42nd CTTB on 14/06/2024

Incoming Initiatives

Accelerator & Beam Control GUI Strategy Update

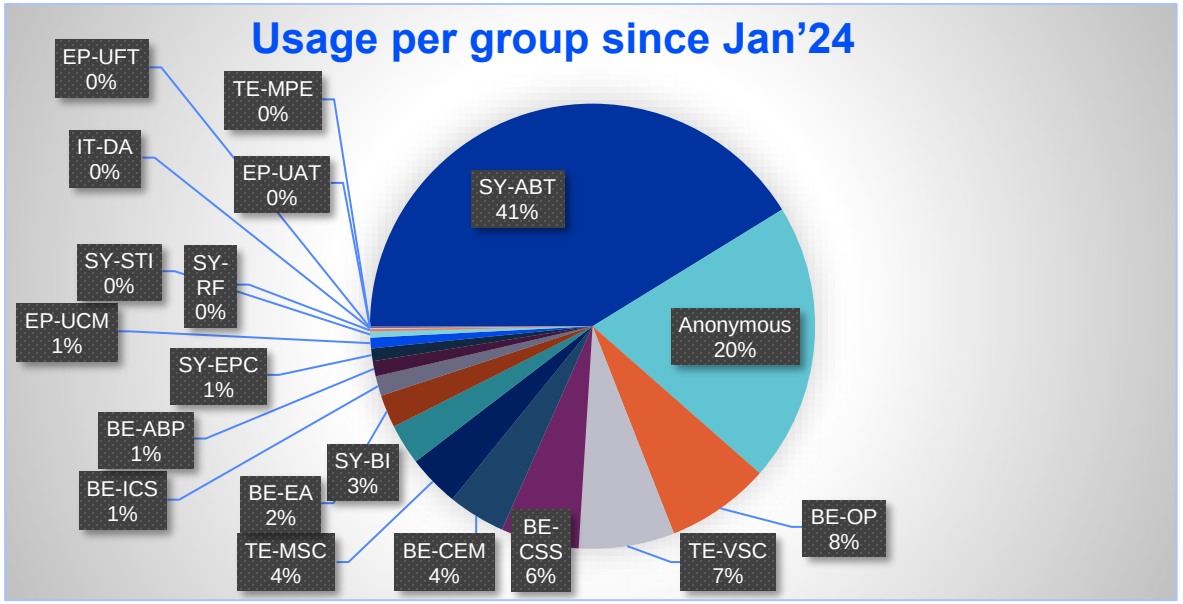
Status	Next	Background	Reference
Ongoing	**06/2024→Sep 2024** WRAP & PyUI review **14/06/2024** WRAP Status update and Review organization report at the 42nd CTTB **Sep 2024** tool to bootstrap migration of Inspector panels to WRAP	• **CTTB action**: "*Produce a PSO document clearly describing the BE-CSS platforms & frameworks*" → Done (pending approval): https://edms.cern.ch/document/3094436/1 • WRAP deployed in January as foreseen, with comprehensive settings functionality → No blocking points for teams to use it[1]  • Next release (June) will be preceded by a CTTB Forum meeting (as usual) to demo / get feedback	BE-CSS GUI Strategy (21st CTTB) Workshop kick-off (29th CTTB) Workshop Day 1 Workshop Day 2 Workshop Summary & Follow-up

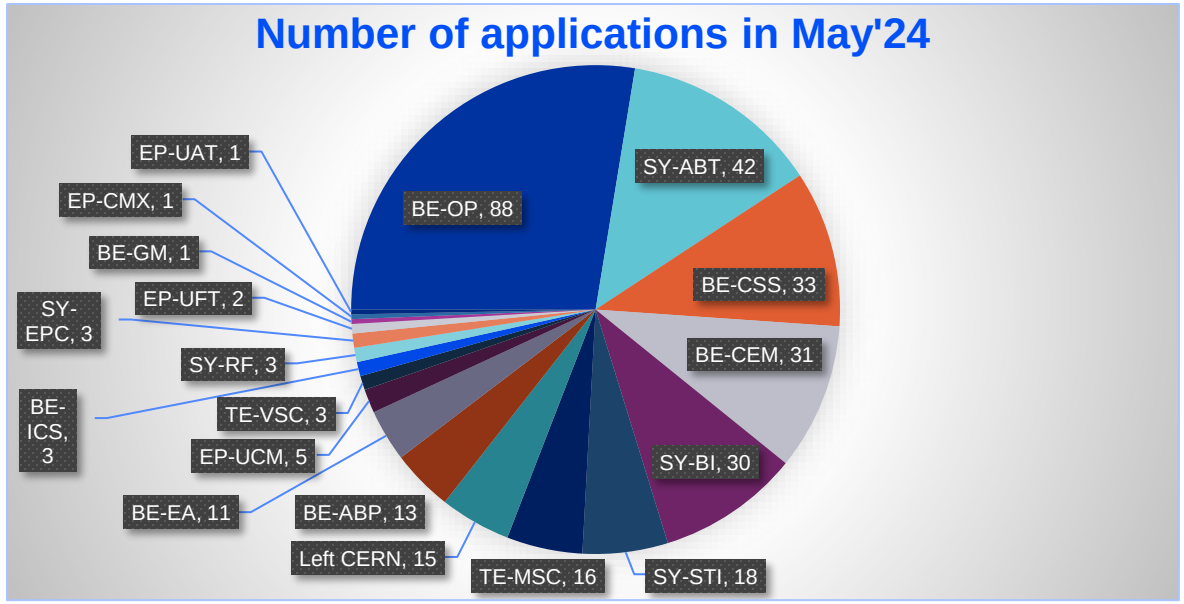
[1] WRAP does not yet support integration of user code. However, analysis of Inspector files shows that more than 90% of panels do not contain any user code.

Accelerator & Beam Control GUI Strategy Update

Status | Next | Background

- S. Deghaye will give a status update @CTTB in June & discuss the proposed review, which requires participating groups to properly use WRAP first. Action: equipment groups





- In July, an MSc STAG will work on a tool to bootstrap migration of Inspector panels to WRAP.
  → First version available in September'24. However, RF should not wait to start using WRAP.

Wireless Fieldbus

Status	Next	Background	Reference

New ◯	**Shared GRAD request being formalised (SY-ABT, SY-BI, BE-CEM) [1/3 could be funded by EPA project]**	• Recommendation from ICCF to investigate this emerging technology
		• Topic discussed at the R2EWG to investigate needs for a rad tol solution:
		  • State of the Art:
		  • SPS & LHC fully covered with LoRa network
		  • 70 IoT LoRa RadMON for Electronics deployed (BE-CEM)
		  • Wireless Rad Tol IoT platform available for other applications
		  • Future needs identified:
		  • WP 8 EPA project: pilot project in SY-ABT for data diagnostic acquisition on Septa (i.e. vibrational analysis)
		  • SY-BI: BLM and BPM with wireless link (i.e. easy installation in NA)
		  • High Rad tolerance required and a bandwidth higher wrt LoRa – New technologies to be explored
		• Potential for FCC but project management does not see a CTTB involvement at this stage, at least.
			Rad-Tol Wireless solutions: Status and Future development (39th CTTB)

CTSB Action	• For info		

Copper to Optical fibers (C2F)

Status	Next	Background	Reference

New	◯ **ECF-R2WG on this topic 20/06/2024**	• EN-EL is promoting the use of copper-to-fibre converters to rationalize the space occupancy and to reduce the impact of the cabling campaigns in the accelerators
		• D. Ricci proposed the following strategy:
		  • Target the development of a rad tol opto-electronics board C2F for DI/OT
		  • Standardise certified rad-tol components from EP-ESE:
		  • VTRx+ for short distance
		  • CTRx/CTTx (as for BLM/BPM cons) for long distance – Production is on-going – 7000 modules foreseen by Q4 2025 – Last call soon !
		• CTTB endorsed the strategy but mandated the ECF/R2EWG to quantify needs and identify a pilot use case
			Preparing the evolution from Copper to Optical Fibres at CERN (39th CTTB)

CTSB Action	• For info		
Follow-up	• **According to the needs and use cases identified decide on central CTRx/CTTx supply and to set up a proper project**		

Shared GRAD requests status

Request reference	Project Short Description	Groups Involved	CTSB Approval Status	Next Steps
CTTB GRAD 33rd CTTB	Integration of BST functionalities in White Rabbit transmitters and receivers to converge towards a unique solution for GMToWR, BSToWR and RFoWR	SY-BI BE-CEM (SY-RF)	Request Approved *Specification document of the common WR receivers issued*	Hiring process in progress
CTTB GRAD 29th CTTB	Development of a Data Analysis and Processing Platform for Accelerator Controls Data	BE-CSS, TE-MPE, SY-BI, BE-ICS, TE-VSC, SY-ABT	Request approval pending the definition of the long term maintenance strategy	CSS long term maintenance strategy for the platform to be defined (in collaboration with BE DH, CTSB chairs)
CTTB GRAD 32nd CTTB	Integration of BE-OP and HSE-FRS specific functionalities inside EAM eLogbook	EN-IM, BE-OP, HSE-FRS	Request not supported *Request will be internalised to BE-OP*	• Investigate alternative resources funding schemes • Reconceive the working model

CONS Requests Endorsed by the CTTB

CONS Requests reviewed by RAWG in 02/2024

EDMS Doc	Title	Operational Availability Impact reduction w.o. weighing (0-15)	Operational Availability Impact reduction score (0-15)	Safety Impact Reduction (0-15)	Environment Impact Reduction (0-15)
2406364/0.5	Consolidation of SMBs [PS-Spares][SY-ABT]	10.0	10.0	3	0
2963874/0.5	Consolidation program of Magnet safety covers to IP conformity	0.0	0.0	13	0
2975874/0.2	PS 10MHz RF System Driver Replacement	10.0	8.5	3	1
2902549/0.8	Replacement High-precision rolling machines	10.7	1.6	8	0
2683577/1.1	Replacement of REX-ISOLDE 101 MHz 90kW RF power amplifiers PS-CONS SY-RF	9.3	1.4	8	0
2962654/0.2	Consolidation of the PS Booster main Bending Magnets	9.3	9.3	0	0
2589645/0.6	Deployment of fast interlocks detection system (FIDS)	9.3	9.3	0	0
2902521/0.8	Replacement machining equipment in RP workshop and the Free Access workshop	12.1	1.8	7	0
2966726/0.2	AD C10 RF System	10.0	1.5	5	2
2783932/3	PSB BI.BSW Coil Spares	7.9	7.9	0	0
2583789/0.2	Consolidation of the LHC Injectors Magnets, Spare Bus Bars for the PS Main Magnets	8.6	7.3	0	0
2964014/0.2	PSB spare quad vacuum chambers	7.1	7.1	0	0
2787694/4	Inductive adder KFA4	9.3	1.4	2	3
2902555/0.8	Replacement Computer Tomograph Rayscan Mobile for LS3	15.0	2.3	3	0
2963875/0.2	LHC Beam Vacuum Warm Module Consolidation	12.9	5.1	0	0
2965204/0.2	Consolidation of LHC Inner Triplets Edge Welded Bellows	9.3	3.7	0	0
2956941/3	LHC Beam Controls LLRF Consolidation	7.1	2.9	0	0
2963925/0.2	LHC Beam vacuum plug-in modules consolidation	6.4	2.6	0	0
2647243/2.1	LHC-CONS: Quench detection system for main dipoles with variable settings.	5.7	2.3	0	0
2778195/0.2	Consolidation of Power Converters for TE-MSC magnet test facilities in b. 867	12.9	1.9	0	0
2266520/4	HIE-ISOLDE Spare Cryomodule	7.9	1.2	0	0
2961937/1	AD-CONS: WIC for the AD machine	7.1	1.1	0	0
2637599/0.4	MDLV magnets for the SPS Transfer Lines	2.9	0.4	0	0
1552257/0.5	Consolidation of the REXTRAP solenoid (used old CONS form --> no scoring possible)	#N/A	#N/A	#N/A	#N/A

CONS Scoring by RAWG, CTTB - 23/02/2024, Lukas Felsberger

CONS Requests relevant to CTTB – (11/2023 – 05/2025)

EDMS	Title	Group	CTTB Reviewed	Opinion
2975874/0.2	PS 10MHz RF System Driver Replacement	SY/RF	YES	Endorsed
2683577/1.1	Replacement of REX-ISOLDE 101 MHz 90kW RF power amplifiers PS-CONS SY-RF	SY/RF	YES	To be presented to CTTB. Check BE/CSS and BE/CEM resources.
2589645/0.6	Deployment of fast interlocks detection system (FIDS)	TE/MPE	YES	Endorsed. Uses DIOT.
2966726/0.2	AD C10 RF System	SY/RF	YES	36th CTTB. Check BE/CSS and BE/CEM resources. Pending.
2787694/4	Inductive adder KFA4	SY/ABT	YES	Pending
2647243/2.1	LHC-CONS: Quench detection system for main dipoles with variable settings.	TE/MPE	YES	36th CTTB. Pending.
2961937/1	AD-CONS: WIC for the AD machine	TE/MPE	YES	Endorsed
2956941 v.4	LHC Beam Controls LLRF Consolidation	SY/RF	YES	Endorsed – White Rabbit
3069653 v.0.2	Consolidation request - Warm magnets transport	EN/HE	YES	Endorsed. BE/ICS to advise.
3065732 v.0.2	Consolidation request - LHC Cryomagnets transf	EN/HE	YES	Endorsed. BE/ICS to advise.
3074352 v.1	CPR - Reduced consolidation of the ventilation sys	EN/CV	YES	Endorsed. Urgent replacement recommended. Check resources with BE/ICS.
3014585 v.0.2	Consolidation of the AD Electron Cooler	SY/BI	NO	Pending
2787885 v.2	CPS BPM DAQ consolidation request	SY/BI	NO	New
2429435 v.1	Consolidation of LHC Beam Position Monitors	SY/BI	NO	New
2787895 v.1	Renovation of the FBCT acquisition electronics in the PS complex	SY/BI	NO	New
2267978 v.2	BTV electronics consolidation on BC64222	SY/BI	NO	New
2268146 v.1	Consolidation of SPS Ionisation Profile Monitors (	SY/BI	NO	New
2787940 v.1	PS BPM cabling consolidation	SY/BI	NO	New
2782477 v.2.1	Production of BLM Ionisation Chamber Detectors	SY/BI	NO	New
2268153 v.0.2	Consolidation of LHC Beam Wire Scanner Electr	SY/BI	NO	New

Status ATS-IT Initiatives Triggered by CTTB

Initiative	Status	CTTB actions / comments / concerns
Linux Strategy for Front-end Computers beyond RUN3 (debian support)	Ongoing 	• Debian images have been built and integrated with the ATS boot infrastructure. Validation of the Debian images by the ATS equipment groups is ongoing. • Debian training performed in April 2024. • Integrating Debian CI pipelines
Gitlab CI for FPGA/SoC Designs	Ongoing 	• Origin Graduate selected by IT. • The k8s team enabled the lazy pulling feature for production clusters. • Lazy pulling issues with the k8s cluster have been fixed in testing. • Openstack project resources were partially approved. • Openstack issue under investigation → bring up the new cluster.
SWAN-like service on the TN	Ongoing 	• Milestone plan has been prepared & project graduate started in January. • A first prototype of a tool to create custom software environments in SWAN has been developed and has been reviewed. • Implementation of feature to launch notebooks with predefined arguments started.
Review of Electronics Design Automation Tools (EDA)	Blocked 	• Initiated by the CTTB ECF «Tools and Trainings for PCB Design & Simulation, FPGA Design & Verification». • PSO presented at ATS-IT TC 27.06.2023. • ELEC reactivation decided at the STEPS on 29/05/2024
GitLab TN Runners	Ongoing 	• Presented in ATS-IT TC 28.11.2023; PSO document • Advancing as planned, currently NFS authentication implementation review ongoing by Security team.

AOB
CTTB Organisation

- **Scientific secretary**
  - **Anargyros Kiourkos** (EN-EL) has been replaced by Pablo Ariel Alvarez (EN-CV) in the role of CTTB scientific secretary.
- **Community Forums (CFs) vs Working Groups**
  - Is the current organization based on Community Forums and only two working groups still optimal ?
  - Being the community forums a place to exchange ideas and share experience without formal representation from each equipment group, new initiatives follow up requires the definition of ad-hoc task forces
  - Since some CFs serve also as users ' meetings for main services offered by the controls 'groups converting them in WGs could make more sense ?