

ESS Update

Update to Science Advisory Committee

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2024-10-24

Entering the finish towards BoT

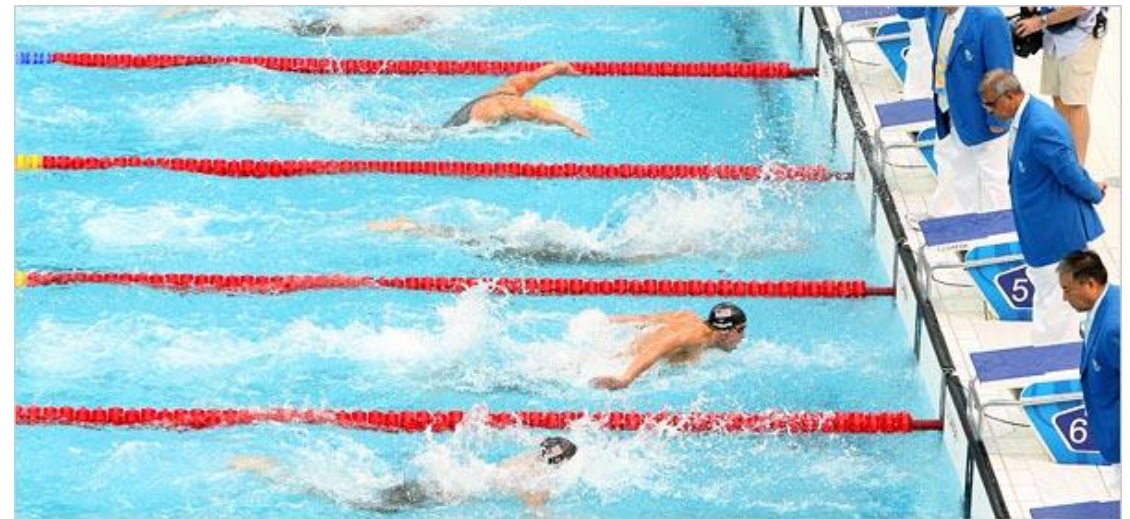


- From September 2014 (official groundbreaking) to October 2025 (current BoT) it is about 4000 calendar days.
- We have about 400 calendar days left to the current BoT date.
- **I.e., 10% are remaining.**

The outcome of the race naturally will depend on the resilience during the finish.

This requires continuous focus and high staff motivation.

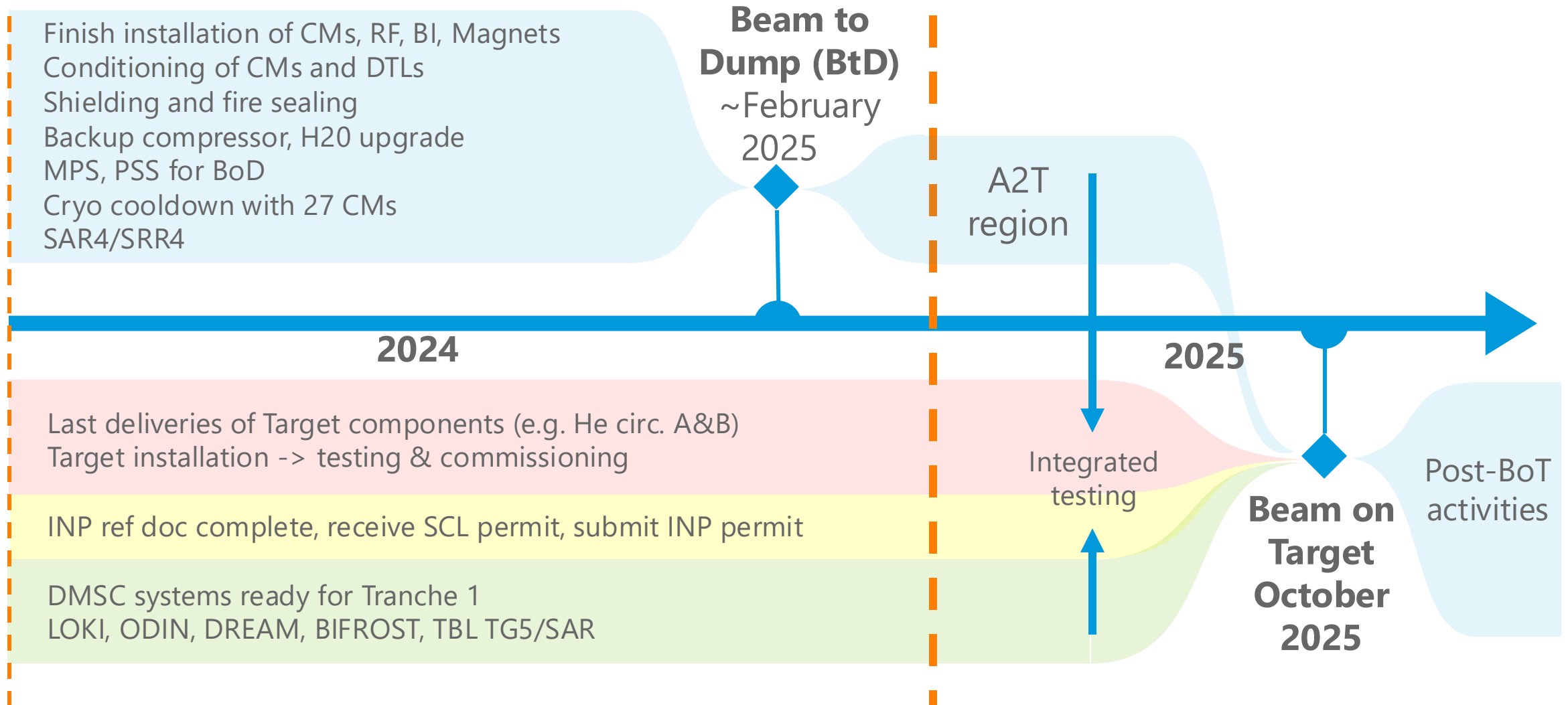
And after the race is anyway just before the next race.



Evolving within the phase of final integration



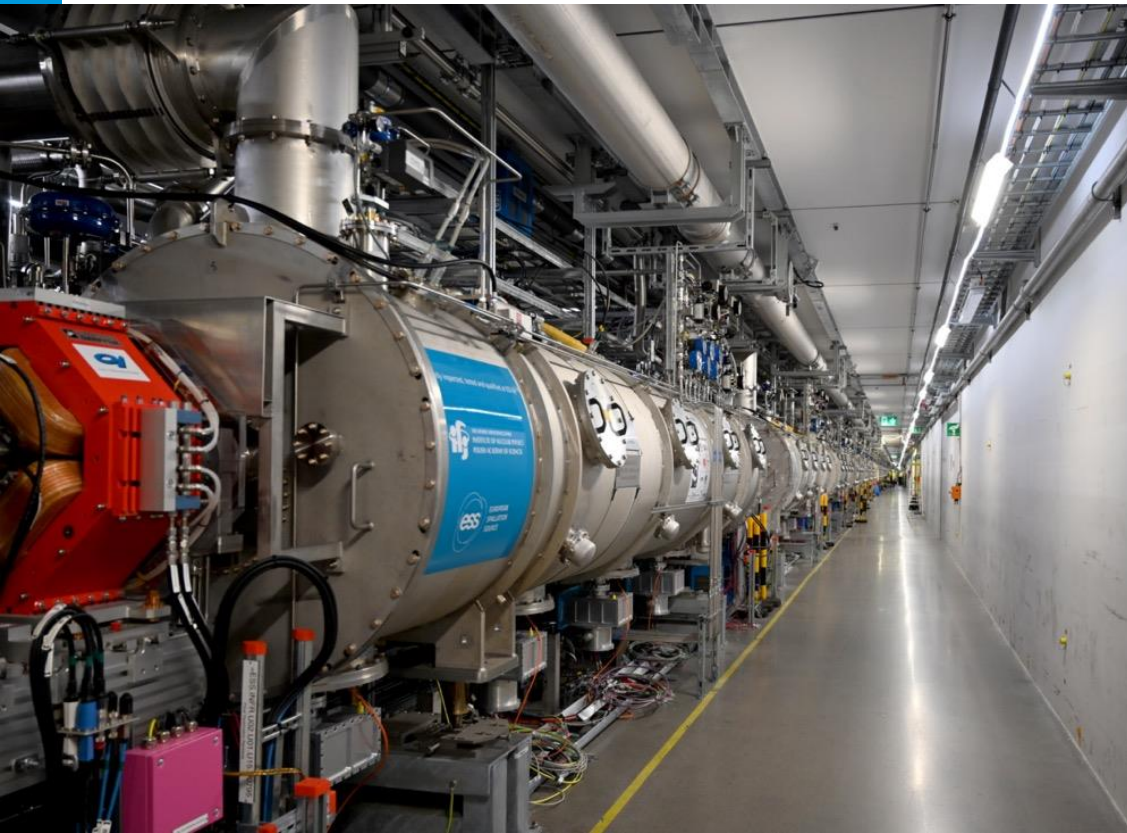
Everything must come together



On our way to Beam to Dump



- ✓ 27 cryomodules
- ✓ 71 Linac Warm Units
- ✓ BCM, BLM, WS, FC, IBS
- ✓ MPS, PSS
- ✓ 26 RFPS
- ✓ All modulators and klystrons (2 MW)
- ✓ Back-up helium compressor
- ✓ MB cooling station upgraded
- ✓ Warm Coupler Conditioning
- SAR4/SRR4
- Cold Cond.
- System Tests
- MPS/PSS FIT
- BOD



On our way to Beam to Dump



SCL license received

This means that from a licensing perspective we are ready for Beam to Dump.



Strålsäkerhetsmyndigheten

Swedish Radiation Safety Authority

European Spallation Source ERIC

BREV

Datum	Vår referens
2024-05-31	SSM2023-7177-43 Cu-09937
Ert datum	Er referens
2023-10-05	Johan Waldeck

Tillstånd för verksamhet med joniserande strålning

Bifogat finner ni ert tillstånd för verksamhet med joniserande strålning. Notera att tillståndet är giltigt i fem år, varefter det behöver förnyas.

Förutom strålskyddslagen och strålskyddsförordningen är föreskrifterna i Strålsäkerhetsmyndighetens författningssamling bindande, vilket innebär att de måste följas av de verksamheter som berörs av föreskrifternas innehåll. Lagen, förordningen och föreskrifterna finns på www.ssm.se. För transport av utrustning som innehåller radioaktiva strålkällor gäller lagen (2006:263) om transport av farligt gods.

Notera att detta tillstånd ersätter tidigare tillstånd för verksamhet med joniserande strålning vid European Spallation Source ERIC.

Återkom gärna om ni har några frågor.

Hälsningar

On our way to Beam on Target

- ✓ Target lid fitted
- ✓ Moderator cap
- ✓ Vacuum
- ✓ Imaging/PBIP optical
- ✓ Helium circulator (B)
- ✓ AC remote handling prep
- ✓ CMS commissioning
- ✓ Casks production

- ✓ Target wheel rotation
- PBW SAT + del.
- Casks del.
- Circulator commissioning
- Test, test, test



On our way to first science (you will hear a lot more)



- ✓ ODIN doors, sample stages, optical bench
- ✓ DREAM detectors
- ✓ BIFROST detectors, analysers

- ✓ LOKI collimation vessel, sample area
- ✓ TBL infra

- Bunker roof
- Infrastructure, ➤ Tranche 2/3 controls



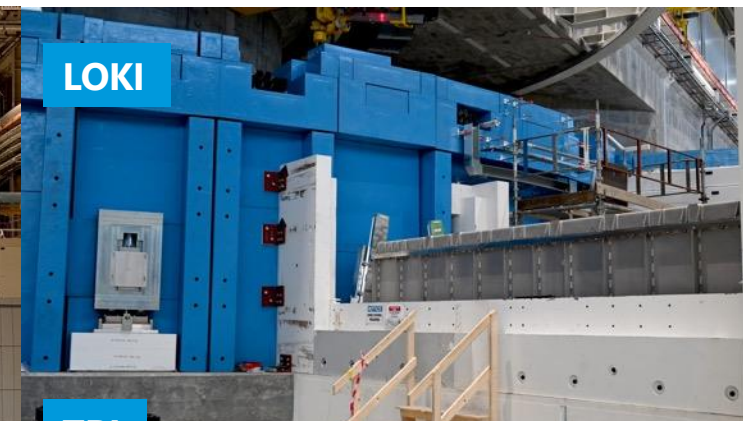
ODI



DREA



BIFROST



LOKI



TBL



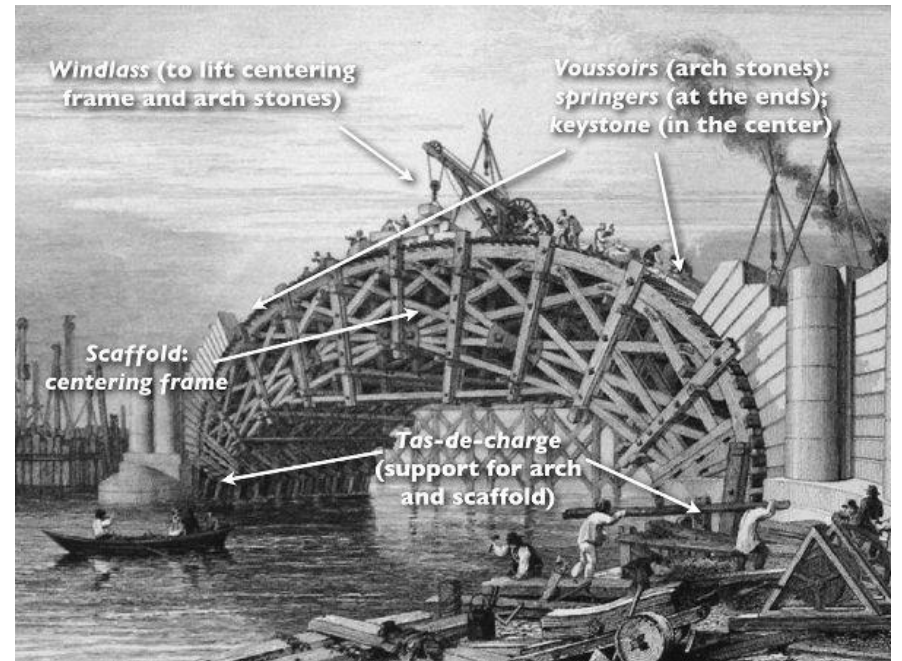
A word on the adaptation of the organisation since our last meeting:

Creating unambiguous ownership for operational readiness.

Merging OI and TD into the Operations and Machine Directorate (OMD)



- We entrust the Head of OMD with the mission of delivering both *Technical* and full *Operational Readiness* for the “Neutron Factory”.
- The “O” comes on purpose first in “OMD” to stress the change of focus coming with the project cycle.
- Achieve a self-sustaining organization.





A word on the adaptation of the organisation since our last meeting:

Creating unambiguous ownership for finishing the instruments and assuring their preparedness for the science programme.

Transferring NSS into the Science Directorate



- We create unambiguous ownership, endorse and strengthen scientific leadership and generally reinforce the teams dealing with the instruments.
- We empower and entrust the Science Director with the responsibility of completing the current instrument programme as well as preparing for the further development of the instrument suite.



Adapting the organisation for Steady State Operations (SSO)



We know exactly what we must achieve

We have an agreed upon understanding of our mission.

Since the very early discussions that took place at the end of the last Millennium to today ESS's mission has not changed:

We must provide a top of the range neutron facility that allows the European Neutron Science Community to produce over many decades absolutely outstanding scientific impact.

And,

As stewards of public funds, we must do so in the most economical way.



We know exactly what we must achieve

We have an agreed upon understanding of our mission.

ESS must provide an infectious user experience.

Facts about ESS

You have seen this slide often before



5 MW
particle
accelerator

2 MW at start



15
instruments

next step is 22



3 000
guest scientists visiting
yearly

to conduct experiments



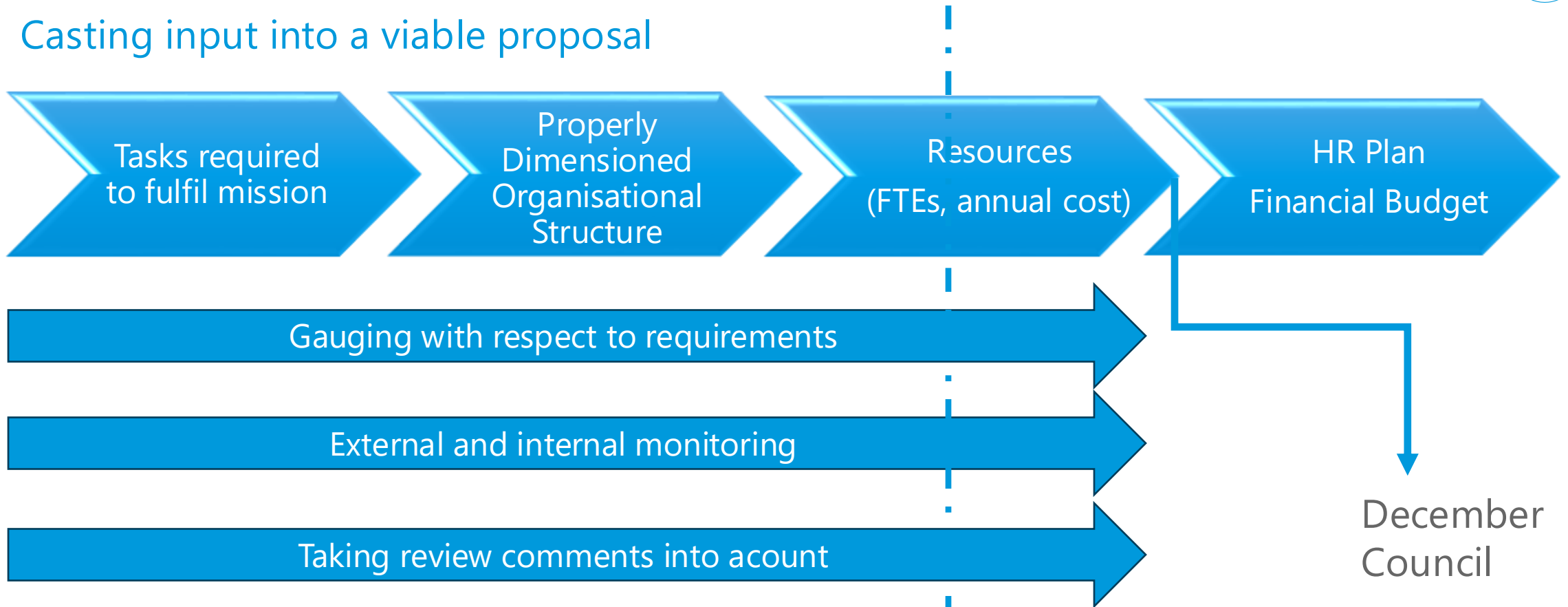
800
experiments per
year
> 500 publications

- ***We will have to reach this goal at the latest half a decade after the end of the project with 15 instruments @2 MW.***
- ***And we have to do so within a “benchmarked” financial framework.***

What remains to be done



Casting input into a viable proposal



- We are through the second step preparing for the third.
- We must reach step three by the time of the Council.



Goal

Organising the work

Presenting at the December meeting an improved proposal that

can be accepted by Council as a planning basis for the work that is lying ahead of us.

This implies positive recommendations both from the Expert Group and from the Council Working Group.



Thank you!