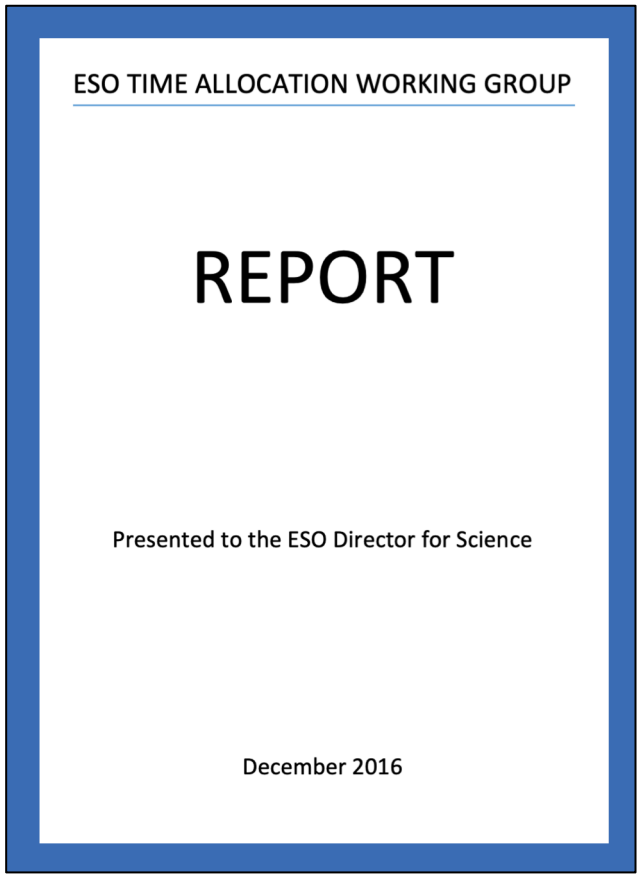
Changes in the Telescope Time Allocation process at ESO

N&O P@@

Observing Programmes Office

The Time Allocation Working Group (2015)

- **Proposal submission**
  - Critically review the proposal submission channels and identify possible areas of improvement.
- **Proposal review**
  - Critically analyze the implementation of peer-review in the ESO system, including alternative approaches.



In a nutshell

The recommendations aim at achieving two goals:

- maximise the scientific return of ESO facilities by selecting proposals that promise to result in significant advancements
- improve the level of feedback provided to the community by the Observing Programmes Committee.

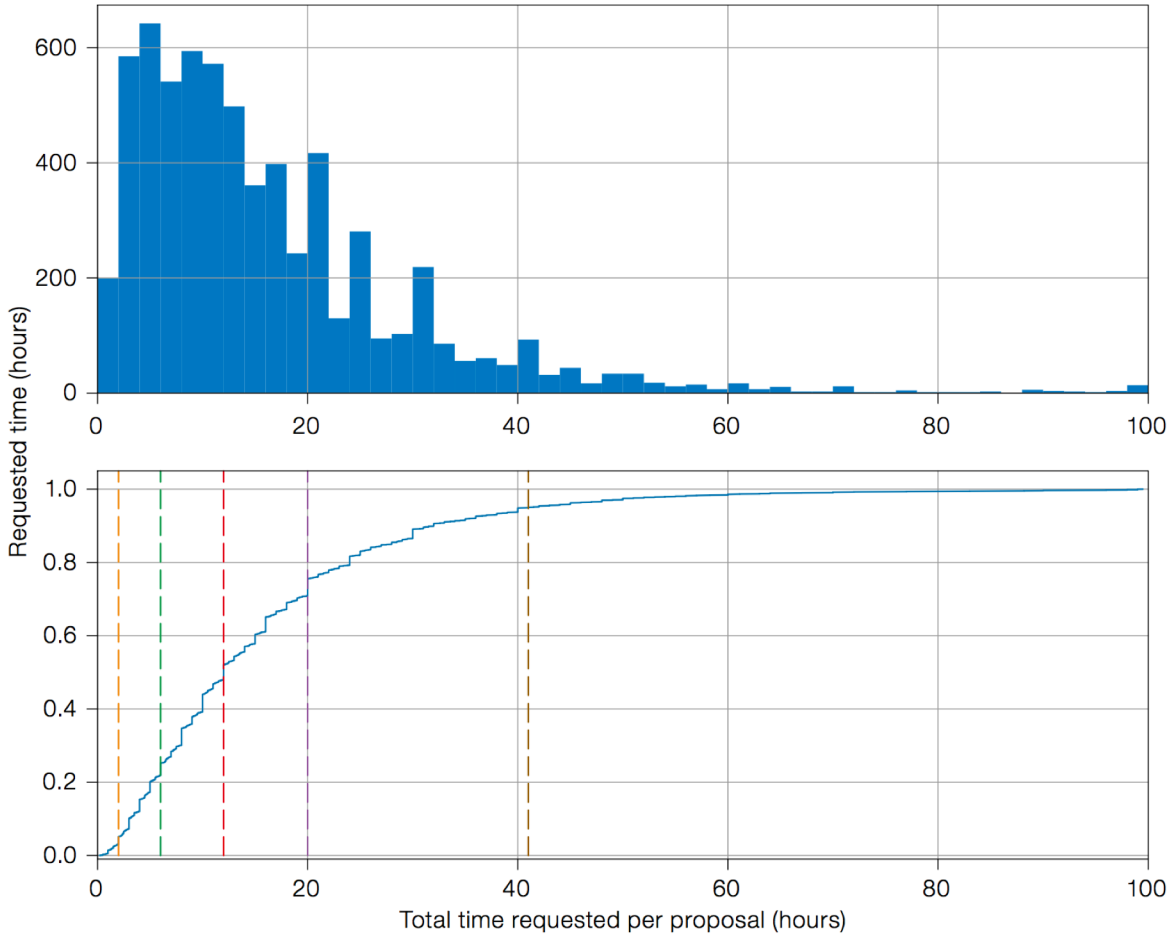
The most urgent measure ESO needs to take in order to achieve these goals is a drastic reduction in the number of proposals that each of the panel members have to review.

Implementation of the TAWG recommendations

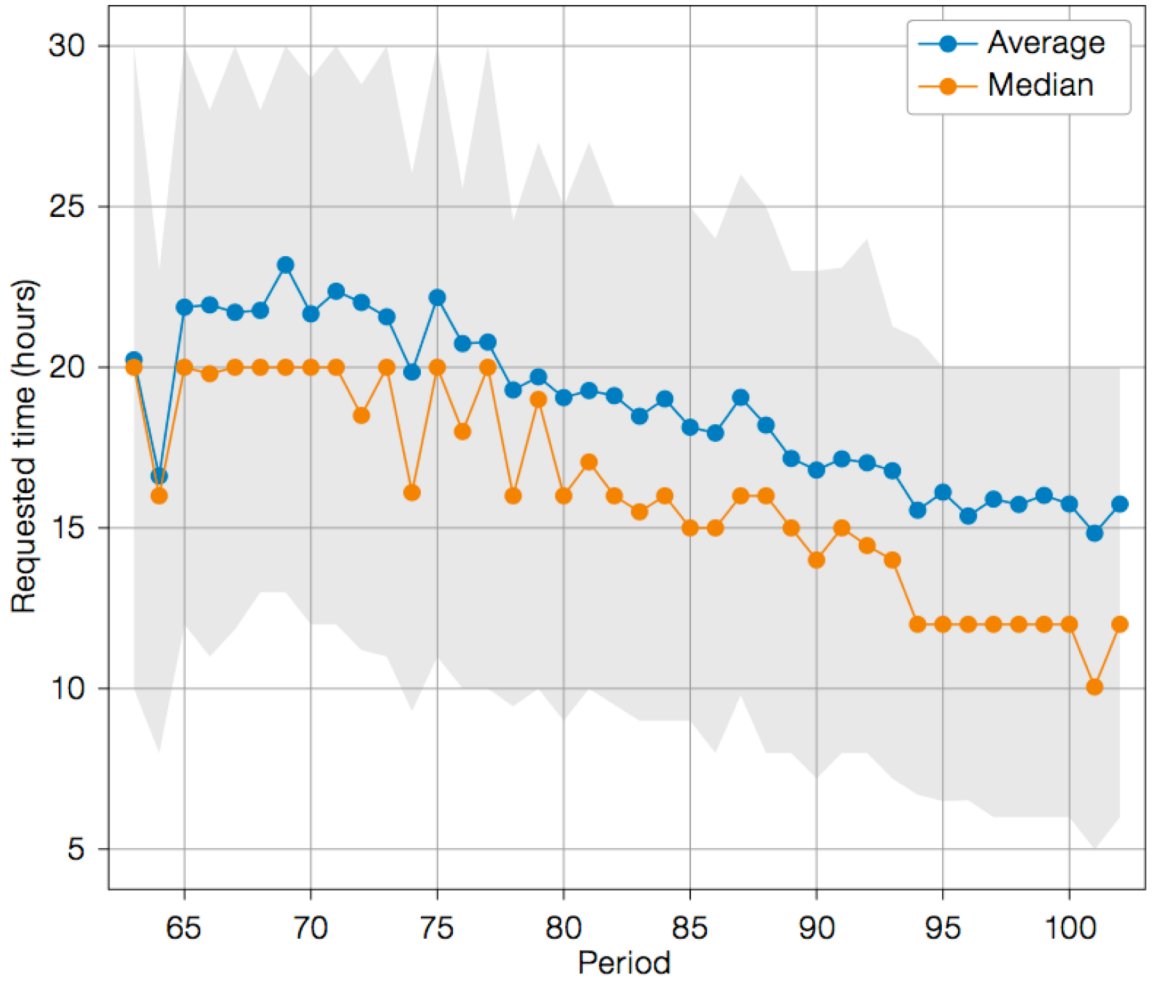
Following these discussions and after an internal analysis, ESO decided to take a **gradual approach**, in which each change is **reversible** and **subject to revision**.

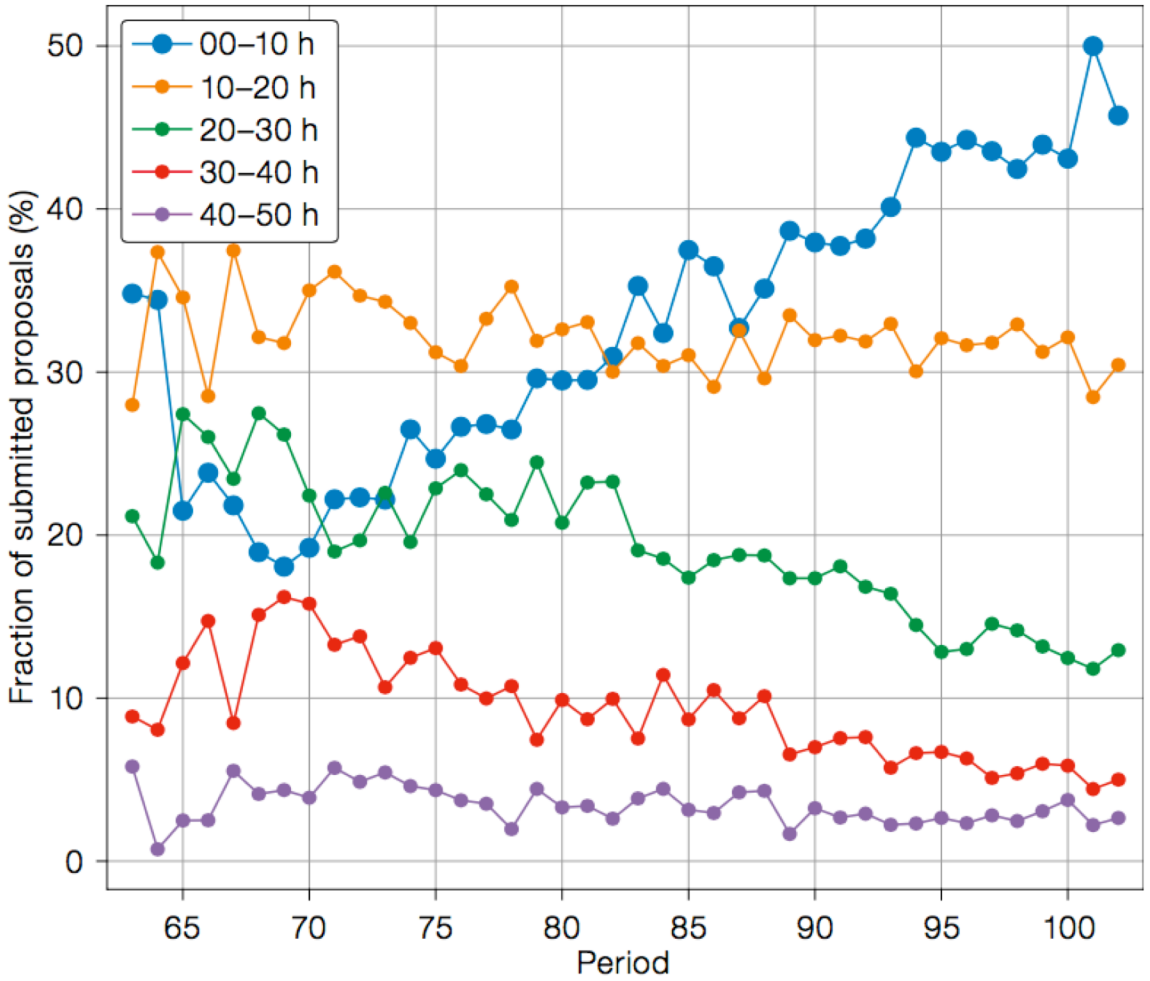
Steps done/1

- Move to a yearly cycle for Large Programmes: announced in P102, effective as of P104.
- Encourage the submission of larger requests to improve the project diversity: solicited in P102 and being monitored. OPC being made aware.



Time request from VLT start of operations





Steps done/2

- Reduce the number of pre-meeting reviewers from 6 to 3: done in P102. Being monitored. To be reverted after DPR has been deployed (see below)
- Obfuscation of proposing team information: done for P103.
  - PI removed from front page and listed with cols in alphabetical order.
  - cols list moved to the last page
  - Affiliations and countries removed
- **Dual anonymisation** introduced in P106 (dry run), consolidated in P108 and fully deployed in P109.

ESO
NANDO
PATAT
2019

A primer to DPR

- Seminal idea by Merrifield & Saari (2009), out of frustration after serving in the ESO OPC.
- The idea is simple: by submitting a proposal, a PI accepts to act as a [at home] reviewer for N~10 proposals submitted by peers.
- *PIs failing to deliver the evaluations by the deadline are subject to automatic rejection.*

DPR at ESO/1

- DPR Experiment (Patat+2019; Kerzendorf et al. 2020)
- The analysis was presented to the Users Committee, the Observing Programmes Committee and the Scientific Technical Committee
- Based on the outcome of the ESO DPR experiment ALMA has deployed DPR as of Cycle #8
- Council approved the insertion of DPR in the VLT/I Science Policy document. The DG has approved the deployment of DPR at ESO
- DPR deployed at ESO as of P110 (next proposal submission deadline, March 25th, 2022)

DPR at ESO/2

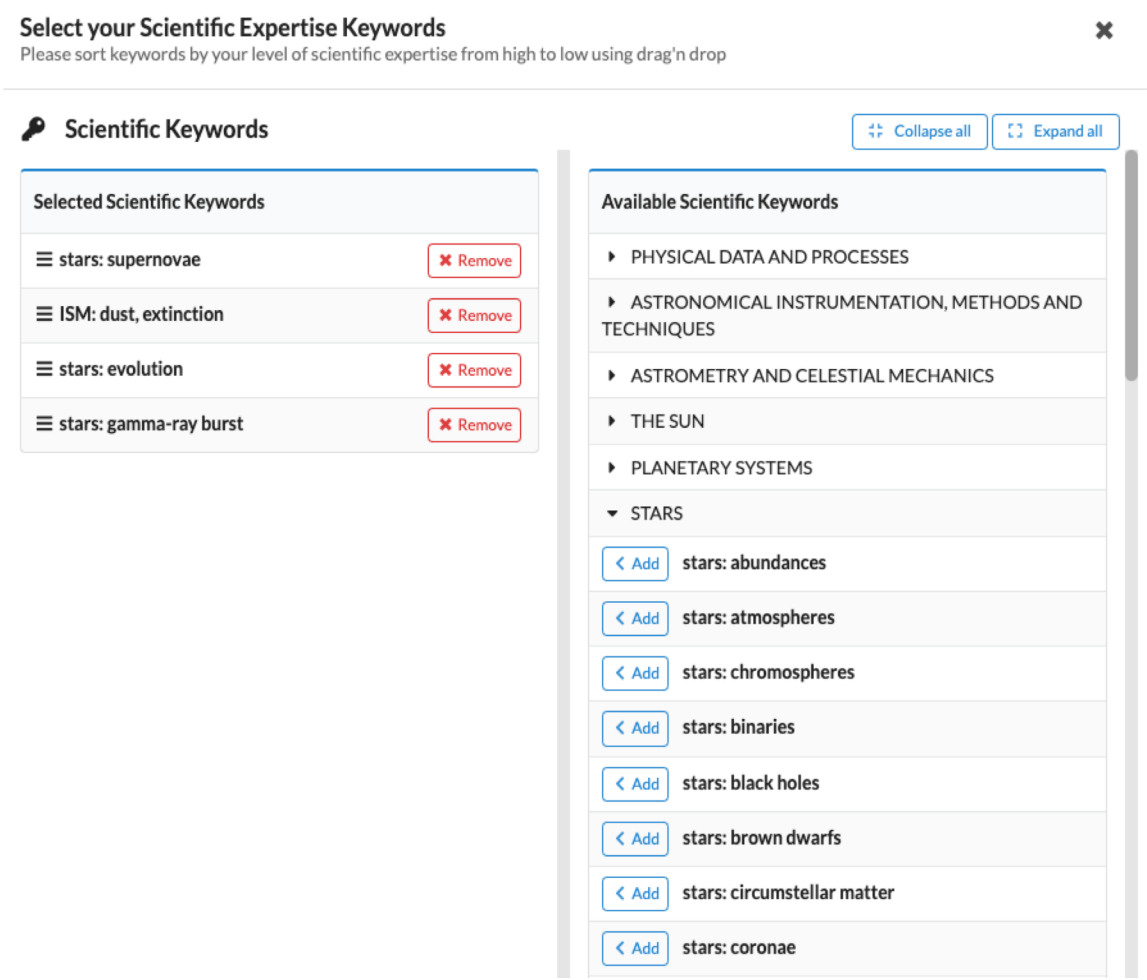
- Information campaign (email to PIs, Newsletter, Call for Proposals [Feb 25th])
- Proposals requesting t< 16 hours will be sent to DPR (~50% of the proposals)
- Large Programmes, Joint Progs, Calibration Progs and Normal Progs including ToO runs will be reviewed by the classical panels
- All applicants will receive 10 proposal per submitted proposal
- PIs can delegate the review to one of the co-Is

DPR at ESO/3

- The proposals will be distributed using the new set of keywords (2 to 5) from the same set used in the User Portal (see below)
- The reviewers will give grades in the same scale of the OPC/panels (1-5)
- The 10 grades will be aggregated to compute the final rank
- Each reviewer will have to enter the feedback to the PI
- The PIs will be provided with the 10 independent, unabridged comments (as opposed to the single, *collegial* panel comment)

Proposal referee matching

- Multiple keywords are specified in the User Portal profile by all users who intend to submit a proposal since P105. All users have specified 3 to 5 (max) keywords (>8,000 profiles)
- Multiple keywords (2 to 5) will be specified in p1 (system ready) from the same set of keywords
- These will replace the current category-subcategory schema
- Keywords are specified in priority order both in the UP and in the proposal



Keyword matching

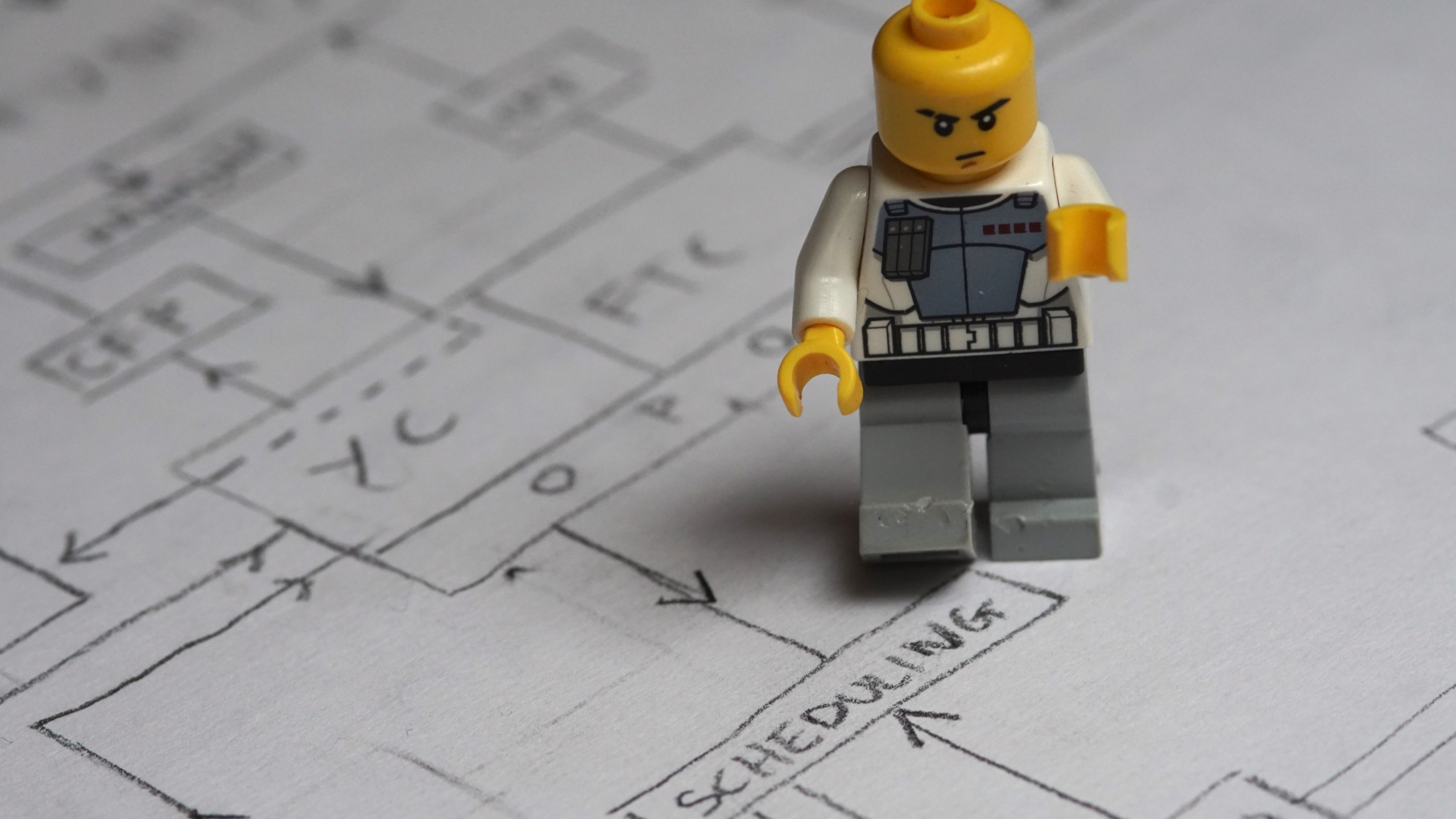
- Approach similar to that used by ALMA
- One step further: introducing **proposal-referee matching score** (similarity cosine)
- Will certainly use it in P110
- This is based on self-profiling of the PI and the proposal submitted by the PI
- Limited and subjective
- Need for a better and objective/reproducible procedure

Find an expert

- In the DPR experiment we used a machine learning approach
- We profiled the applications and the reviewers using the proposal text and the refereed literature to construct a knowledge iper-vector via counts of a selected word body
- It then uses the cosine similarity as a figure of merit for the matching (1=perfect match; 0=no match)
- This was successfully used in the DPR experiment
- The future: discussion initiated (ALMA, HST, ESA, …, to propose an ESO workshop on this topic)

The future of DPR (maybe not so far)

- ESO will consider a machine learning approach as a recommender for the proposal-referee matching
- This will allow objective and reproducible proposal distributions, taking into account a number of aspects
- The most suitable approach (in-house/public/private-outsourcing) is under discussion
- “academic/commercial” initiatives start to appear (see for instance Prophy.Science)


SCHEDULING

Next steps

- Move to a yearly cycle
- Introduction of a Fast Track Channel (continuous or staggered reviews via DPR)
- YC+FTC may come by the end of 2023
- The scheduling function will be transferred to the User Support Dept. A new scheduling tool (TA2 is being developed)
- Introduction of a filler channel (with simplified review procedures)
- Introduction of a VLT-ALMA joint channel (discussion started; implementation in p1 completed)

THANKS!