Draft Minutes of the 84th meeting of the Scientific Technical Committee held at ESO, Garching on 21 and 22 October, 2014.

The STC convened in the following composition:

<table>
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<tr>
<th>Chair:</th>
<th>A. Marconi (Italy)</th>
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<tbody>
<tr>
<td>Members:</td>
<td>J. Hron (Austria)</td>
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<td>H. Van Winckel (Belgium)</td>
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<td>L. Bronfman (Chile)</td>
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<td>A.-M. Lagrange (France)</td>
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<td>M. Steinmetz (Germany) Via VC</td>
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<td>M. de Vos (The Netherlands)</td>
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<td>I. Smail (United Kingdom)</td>
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<td>J. Monnier (USA)</td>
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<td>Excused:</td>
<td>M. Perez Diaz (Brazil)</td>
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On behalf of the
ESO Executive: T. de Zeeuw L. Pasquini
P. Andreani M. Peron
D. Baade S. Ramsay (Day 1)
P. Ballester (Day 2) A. Russell
J.-P. Berger M. Sterzik
R. Brunner (Day 1) R. Tamai
M. Casali L. Testi
F. Delplancke W. Wild
C. Dumas J. Woillez
P. Geeraert (Day 1)
R. Gilmozzi (Day 1)
P. Gray (Day 1)
J. Haucke (Day 1)
G. Hechenblaikner
N. Hubin (Day 1)
R. Ivison
A. Kaufer
F. Koch (Day 1)
B. Leibundgut
J. Liske (Day 1)
C. Lucuix
L. Noethe

Minutes: M. Béthermin/ J. Grunhut
21 OCTOBER 2014

1. **Opening of the Meeting and Adoption of the Agenda (STC-541)**
The agenda was approved without remarks.

2. **Approval of the Minutes of the 83rd STC Meeting (STC-540)**
The minutes of the 83rd STC meeting were approved without remarks.

3. **Report of the Director General**
The DIRECTOR GENERAL was thanked for his report. Questions were welcomed.

4. **E-ELT**
4a. **Status (R. Tamai)**
R. Tamai was thanked by A. Marconi. Questions were welcomed.

No questions were raised.

4b. **E-ELT Way Forward (A. Russell) (Cou-1553 rev 2 conf.) [**]
A. Russell was thanked by A. Marconi for his report.

M. de Vos asked for clarification about the timeline argument (7 years LTAO versus 9 years METIS) as that point was not obvious.

A. Russell responded that if the desire was to have both end at the same time, then one could start two years later. More importantly that also provided an extra two years to get 10 million Euros in place to start the LTAO on time.

M. de Vos wondered whether significant community contributions were to be expected for the LTAO instrument.

A. Russell responded that (for fairness) the baseline foresaw that instrument being predominantly an industrial contract-based procurement, led by ESO. However, there had been renewed discussions with the HARMONI group about making it part of their scope of work. A more realistic solution was that cash would be injected through GTO time, which would bring more funding to the whole programme. That could free-up money from other instruments and it could be brought back to LTAO, as that was the highest priority.

M. Steinmetz asked whether instruments 4 and 5 were financed through to PDR. If so, he questioned what kind of contract those consortia would get and what the incentive for consortia to spend money would be, if all they were guaranteed was support until PDR.

A. Russell responded that the budget to take the design to PDR was only for the ESO costs. The current model assumed that the agencies would provide labour costs to PDR, which would ultimately become compensated by GTO as part of the procurement; however, if the instrument project had to stop at PDR (and never started again), then that investment would be gone. That should be clear in the document (it was understood by the Council). Implicit in
the adopted 2 phase approach was a shared risk with the entire programme but the deferred items could restart as soon as phase 2 money was available.

M. Steinmetz questioned whether the funding agencies would find that acceptable.

A. Russell responded that the final proposal was for a contract to be signed to completion for the three main instruments. MAORI was signed to completion and LTAO was not a contract to consortium. Other groups (MOS and HIRES) were involved in competitive studies and the first step was the down-select process, which would take a couple of years. So that would not be an issue until about 2017-18.

4c. Report from the E-ELT Subpanel (A.-M. Lagrange)

4d. Discussion

In response to a question regarding cost of the LTAO module, M. Casali answered that 10 million Euros was the cost for one system. However, it did contain a certain amount of cash anticipated for external effort. Few institutes had the expertise to build such a system.

A.-M. Lagrange asked about the LTAO strategy for HARMONI and METIS and whether they could be shared?

M. Casali responded positively that that was certainly a possibility and was being studied in the ongoing PFS work.

E. Sadler was surprised that some instruments would not be available before 2032 (MOS, HIRES).

A.-M. Lagrange responded that that number reflected the fact that FDR of MOS and HIRES would start only after phase 1 in 2026, which led to the 2032 estimate (however, that was the worst-case scenario).

A. Moitinho asked whether the MID-IR detector problem for METIS was taken into account with regard to postponing either LTAO or METIS. He inquired whether METIS could still satisfy the expected science case with the current detectors given the problems they had.

A.-M. Lagrange responded that that information was requested. She thought it was also necessary to update the METIS TLRs in order to reflect that point.

A. Russell responded that the ability to chop faster with the focal plane chopper meant that that problem was not an issue.

The DIRECTOR GENERAL thought it should not be assumed that there would be delays until phase 2 or that adoption of the current back-up plan was the default plan. He stated that no delays would happen for the next 2+ years and that all instruments would go through to PDR. If there were technical problems, they would be caught and dealt with. Feedback to the community should be presented as ESO was trying to unlock a billion to build a 39-m telescope, which in the worst possible case would not have all the instruments. The DIRECTOR GENERAL noted that he had already planned to update the ESO LTP, as recommended by STC, and to publish an article in the Messenger for the community to read. He outlined that that would happen after Council made its decision regarding the E-ELT. The document would then be produced (a recommendation of the sub-committee). With regard to whom to inform first: the goal was to obtain Council approval first, which required working with Finance Committee and STC.
A.-M. Lagrange responded that the ESC was not the whole community. It was just a subpanel, which was supposed to provide advice in connection with the ELT.

The DIRECTOR GENERAL responded that he had wanted to discuss that issue first with the STC at its extraordinary meeting (in September), and now the ESC was involved. The overall issue, which had not been fully appreciated before was that Council delegations wanted documents based on a clearly and fully defined phase 1 (telescope and instruments) for decision at the December 2014 Council meeting, which affected the STC and ESC. It did not reflect an unwillingness to have advice from STC and the subcommittee that looked at the ELT. That had been discussed with Council and the specifics would be discussed in the years to come.

E. Sadler added that the role of the STC was to understand and dive into all options, even though the STC understood that that was an exciting opportunity. However, the STC still needed to look into all details and understand what they meant.

The DIRECTOR GENERAL commented that it was not the intention to criticize the STC but it was his role (together with the ELT team) to make sure that everything worked out fine over the next couple of years. If in 2016 it became obvious that no more money was available for the next decade, a discussion would happen at that point. A. Russell pointed out that phase 2 needed to be compelling as well. Arguments had been given suggesting that it was compelling and desired by the community. That would be a powerful argument with Council, which needed to be made.

A. Marconi thanked all the speakers from the morning session.

5a. ESO budget 2015 and Forward Look 2016-2018 (P. Geeraert) (FC 2022)
5b. Discussion

A. Marconi thanked the speaker.

A. Marconi expressed his concern about the instrumentation programme for Paranal and pointed out that two critical items required money: the replacement of the deformable mirror for SPHERE and the NACO refurbishment. Were these items already included in the budget?

M. de Vos responded positively and stated that part of it was included for the deformable mirrors.

A. Russell clarified that if needed, it would be paid for by the ESO budget. L. Pasquini would address that item in his presentation showing that the rate of new instruments arriving on Paranal already included these expenses.

A. Marconi asked if the fact that no new instruments were planned for 2016 was to pay for SPHERE and NACO.

A. Russell responded that yes, this was to make the provision to do so.

A. Moithino asked whether the MOONS and 4MOST contracts had been signed. He stressed that the STC had previously asked to be briefed about the evolution of these two projects. It had been recommended for construction but the STC wanted first to assess the impact on the programme, funding and available FTEs. However, it had gone too far already.
L. Pasquini answered that the recommendation read that ESO should proceed immediately with MOONS work and then one year later with 4MOST. The work had started, it had been checked that the FTEs and resources were within what had been announced in the call for ideas/proposals to the instruments. Therefore, the work for MOONS had started and it was proceeded through the agreement after GTO approval through Council. With regard to 4MOST, the work was moving towards signing the contract and agreement but the work was still being done on the three points that had explicitly been requested by the STC. This was included in the Fact Sheet. Council approval would be sought in June 2015. A couple of details on a few aspects still needed work and that would be reported at the next STC meeting in April.

The DIRECTOR GENERAL mentioned that L. Pasquini’s description was the normal process. It would be discussed with STC in April 2015 before Council agreed to GTO time. Implementing what had previously been recommended it would be presented to STC again. He proposed to wait for L. Pasquini’s presentation, which included the full plan and context before re-discussing.

6. Directorate of Programmes
6a. New Organisational Structure in Programmes (A. Russell)

A. Marconi thanked A. Russell for his report.

6b. Paranal Instrumentation Roadmap (L. Pasquini) (Cou-1567)

A. Marconi thanked L. Pasquini and welcomed questions.

A.-M. Lagrange asked what the consequence would be on science, if the IR tip-tilt would be removed from ERIS.

L. Pasquini answered that a study had been done at the time when the IR tip-tilt had been proposed. The outcome was that mostly reddened objects in star forming regions (obscure objects) would be lost. The real point was that while that was lost scientifically, there should be a number of similar objects, which were close enough in dense regions to get a visible tip-tilt star. However, no matter what, embedded obscured objects would be lost.

A.-M. Lagrange asked about brown dwarfs and related science?

L. Pasquini responded that they would be lost.

A.-M. Lagrange remarked that it was something that SPHERE would not do at all but it was understood that that aspect was a scientific objective. What was lost/gained by keeping other things?

L. Pasquini responded that the first choice in terms of simplification was that there were not too many parts to look at. The IR tip-tilt sensor significantly complicated the design, bringing a complexity, which could not be afforded. The proposed changes were driven by technical consideration and that choice resulted in only a few missed TLRs set for the instrument.

M. Meyer was of the opinion that something had to be lost, if the instrument was to be on the sky by 2019. That was the biggest issue and therefore it was chosen.

A.-M. Lagrange asked if one was confident that it was the right choice.
M. Meyer added that a potentially related issue was the loss of NACO and the fact that it meant the potential loss of ground imaging from 3-5 micron until ERIS.

L. Pasquini stated that the potential loss would be, if the instrument failed after being put back on the telescope. It was a risk mitigation and the concern was understood. He noted that CRIRES users would lose the instrument for 2 years but certain things had to be done.

A.-M. Lagrange added that NACO had been lost for 2 years now. The point was to understand better the process that had led to these decisions. A.-M. Lagrange wanted to understand the process that determined scientific priorities.

L. Pasquini responded that NACO had been proposed to save the galactic centre observations when it became evident that ERIS was delayed. NACO was supposed to retire 6 months ago when MUSE came online. So the galactic centre event was determined to be a scientifically important case for ESO. Therefore, NACO was chosen to mitigate the loss. A full plan was being developed at that moment to address the survival of NACO and a substantial effort was needed to refurbish NACO as a full facility class instrument.

A.-M. Lagrange asked about the problem of the laser frequency combs for HARPS. She wanted to know if there were immediate or possible consequences for ESPRESSO.

L. Pasquini stated that there were no problems with ESPRESSO. He stressed that the comb itself and the whole chain had been working for ten months. The only problem, which was not minor, was the photon crystal fibre (responsible for broadening of the spectrum) and that it appeared to last for only 30 hours before it had to be exchanged. At that moment the physics were better known and the fibres could be tapered. The company believed that the issue could be addressed by the beginning of 2015. For ESPRESSO, the risk for the comb to arrive late was probable. The backup plan was to use a stabilized Fabry-Perot but that did not have all characteristics of the comb. That would keep the long-term stability at the expense of the imprecision in absolute wavelength.

A.-M. Lagrange asked about the consequences in terms of FTE load for ESO because of 4MOST?

L. Pasquini responded that the full request for FTEs was 6 from that moment to the end. The point was that it was a bit more than originally envisioned. The experience with ESPRESSO showed that ESO had to lead the modification of the telescope. Giving that work-package to the ESPRESSO consortium resulted in a complicated interaction. That was the only change. The other critical area was the detector. The decision was made that ESO would not build the detector alone.

A.-M. Lagrange asked if the cost to ESO was unchanged from the plan?

L. Pasquini responded that the cost had not changed.

A.-M. Lagrange stated that the problem of NACO was the detector and asked if there was a spare one in-house.

L. Pasquini responded that there was the slit viewer of CRIRES but it was not really a spare one. He added that the fastest option was to continue with the planned visit with Raytheon and have the detector fixed. The issue was with some connectors and bonding. In the event that it failed, the CRIRES slit viewer would be used.

A. Marconi thanked the speaker.
6c. **Discussion of Directorate of Programmes Fact Sheets (STC-542B-DOP)**

A. Marconi asked if there were any comments on the Fact Sheets.

No comments were received.

6d. **Report from the La Silla Paranal Subpanel (M. de Vos)**

6e. **Discussion**

A. Marconi thanked M. de Vos.

L. Pasquini commented that commissioning time on AT was favoured before UT because starting the commissioning directly with the UTs would be very expensive for the VLT users, which was also the plan of the GRAVITY consortium.

M. de Vos mentioned that this was just a suggestion, not a recommendation.

J. Monnier thought it should be recognized that the schedule had been missed because of problems that resulted in delays of UTs by 2 years or so because of testing on ATs. That was the trade-off but it was sensible. A backup plan should be in place, if things ran late.

M. de Vos responded that if there were AT specific issues, commissioning of UTs and GRAVITY would not help. He added that he was quite happy to see the new structure in the Paranal programme in place. It seemed to be a very healthy collaboration between Programme Manager, Scientist and Engineer. Any disagreements resulted in creative tension to improve things.

7. **Directorate for Science**

7a. **Directorate for Science Overview (R. Ivison)**

A. Marconi thanked R. Ivison for his report.

A.-M. Lagrange asked whether the change and difference between the Instrument Science group to the Project Science group could be elaborated.

R. Ivison responded that instead of being narrowed down to the specific topic of instruments, it was now open to any projects, which were science driven (e.g. a software project).

E. Sadler commented about the diagram of downloads from the archive and that VHS looked exceedingly low. She questioned whether that reflected the fact that the data were not yet available.

R. Ivison agreed and stated that it was one of two most problematic cases.

The DIRECTOR GENERAL asked to provide feedback about that particular topic as it had been raised during the LSP meeting the day before as well.

R. Ivison asked if A. Finoguenov wanted to provide any further comments about the Public Survey Panel meeting, which he attended on behalf of STC.

A. Finoguenov commented about the displayed statistics about downloads from the ESO archive. He remarked that most of the products from these surveys were deposited in Edinburgh and wondered if ESO had statistics from there.
R. Ivison responded that he did not have those statistics but that he could find them. He emphasized the importance of the ESO science archive facility having that data since to justify the time given out to a legacy programme, it then had to meet certain conditions to reach its full potential.


M. Meyer commented on a previous teleconference where it had been decided to do intermediate telecons, which, however, had not happened. He asked if there were any plans to have these intermediate discussions.

R. Ivison answered that he would only be too happy to have these intermediate discussions and was willing to increase the level of interaction. He admitted that it would have been helpful to have had some interaction soon after the previous teleconference.

M. Meyer responded that that meeting was not pushed for in order to avoid tension and micromanagement.

R. Ivison stated that he was willing and so just needed to be asked.

M. Meyer felt that that process was a bit of a black box.

A. Marconi reminded everybody that it had been agreed that the STC was to be kept updated and that the representatives could provide suggestions and comments.

M. de Vos asked if there was any relation between ESO 2020 and Astronet or the Astronet roadmaps.

R. Ivison responded that there was not, other than the fact that it formed one of the documents, which would be used as evidence. No formal links or meetings but there were people attending Astronet sessions and had the document.

M. de Vos asked if ESO was a partner in Astronet. He remarked that given the scope of the meeting in January 2015 it would be reasonable to give a formal notice of ESO 2020 so that it would appear on their events list.

The DIRECTOR GENERAL answered in the affirmative and noted that the Astronet coordinator was the French delegate on the ESO Council and that the Council Strategy Working Group had discussed keeping an eye on Astronet as it evolved.

There were no additional questions. A. Marconi suggested moving forward.

7c. **E-ELT GTO Policy (R. Ivison) (Cou-1543 rev 2) [*]**

R. Akeson commented that often targets included in preferred lists for GTO time required more work than could be done in the allocated time and the result was that these targets were no longer available to the rest of the community. She asked if that was going to be specifically addressed.

R. Ivison commented that the existing policies were absolutely fine but it was a matter of implementation and interpretation. He felt that as long as there was a Director for Science who cared about such things, there should not be too much trouble. He emphasized that B. Leibundgut had done an excellent job updating the LPO GTO policy over the years.
M. Meyer stated that he was curious about the number 50% for visitor mode. He asked what range had been explored and how that number had exactly been defined. He inquired how that worked with the length for which these GTO teams would exploit that time.

R. Ivison responded that decisions were made to remove details from the original document but there had been no comments with regard to that value, which appeared to be a reasonable estimate.

G. Wright commented about the distinction between general purpose instruments and specialist instruments and the drive towards simpler instruments. However, she cautioned that modifications to specialised instruments in order to meet new science cases should be avoided in order to label these instruments as general purpose.

7d. **Discussion of Directorate for Science Fact Sheets (STC-542C-DSC)**

A. Marconi asked if there were any questions on the Fact Sheets.

No comments were raised.

A. Marconi thanked the attendees.

22 October 2014

8. **ALMA**
8a. **Programme Status Report (W. Wild)**

A. Marconi thanked the speaker and welcomed questions.

A.-M. Lagrange was amazed about the image of the protoplanetary disk.

A. Marconi asked if the black lines in the image represented the tracks of planets.

W. Wild responded that that was too preliminary an image to know what the potential artefacts of the preliminary data reduction were.

The DIRECTOR GENERAL stated that the image was confidential. Therefore, the image should be removed from the presentation before it would be placed on the web.

W. Wild commented that since that data was science verification, it would eventually be available to the community.

A. Marconi thanked W. Wild for sharing the image and asked if there were additional questions.

No other questions were asked.

8b. **Science Operations (P. Andreani)**

A. Marconi thanked P. Andreani for her report and welcomed questions.
E. Sadler asked about the change in policy from the original plan to start more projects instead of trying to finish everything, to now improving efficiency to focus on completing projects. She further wondered what would be the process for making this change.

P. Andreani responded that it would require working on the scheduling of projects at OSF and trying to give priority to programmes requiring only one execution to complete the science.

E. Sadler inquired who would make that decision.

P. Andreani stated that that decision was made by the Head of Science Operations in Chile but it was discussed weekly and there was hope to change the policy to prioritize completing projects.

E. Sadler added that priority would therefore be given to small projects.

P. Andreani responded that that was correct.

I. Smail warned about adopting that sort of approach as it could have unintended consequences. It had been tried on other telescopes and sometimes had bad outcomes. Therefore, a balance was needed but he still favoured the original policy, which tried to get data to as many successful applicants as possible.

E. Sadler requested that the STC followed up on that issue.

A.-M. Lagrange asked about the choice of the number of accepted proposals.

P. Andreani responded that 80% of the time was filled with A and B-ranked proposals and then 10% was filled with C-ranked proposals. There was also the need to satisfy the regional balance, which could result in downgrading of some proposals. The number also reflected that a number of short projects were received (a couple of hours), which was why up to 400 projects could be allocated.

A.-M. Lagrange asked about the overload of the number of hours requested compared to what was available.

P. Andreani responded that it depended on the efficiency, which was at that moment set at 50% efficiency and worked out to about 1500 hours.

I. Smail commented that the fundamental issue seemed to be the efficiency, yet that did not come across in the report as only one of the issues seemed to address efficiency while the others dealt with completion.

P. Andreani responded that it was difficult to understand the problems if the cause was not understood. It was still under investigation using the tools available at the array but it likely stemmed from too much time spent in manual mode where there were no automatic procedures to measure the delays, to create the arrays, to make the pointings. Additionally, there was too much idle time, which was not understood at that point (it could represent technical difficulties, archival issues). All these problems were still being investigated. She stated that an external observer could help.

I. Smail asked what JAO’s view was.
P. Andreani answered that they agreed that there was a problem. Everyone was working on the numbers to compute the time and there was hope that a more complete review would be completed by the end of October 2014.

A. Marconi asked whether the shares between the regions were reflected in how observations were completed.

P. Andreani responded positively.

A. Marconi inquired whether it was enforced forever or just up to a particular cycle.

P. Andreani responded that it should be balanced over two cycles but it was something that the Directors should decide. At that moment the balance was looked at for every observing session.

It was A. Marconi’s understanding that Europe was damaged the most by the share.

P. Andreani responded negatively.

A. Marconi clarified that his comment was to reflect that a lot of high quality proposals were rejected because of that.

P. Andreani responded that this was the case. The oversubscription factor in Europe was indeed higher than in other regions.

A. Marconi thanked P. Andreani for her talk.

8c. **Update on the ALMA Development Studies (L. Testi)**

A. Marconi thanked L. Testi for his report and welcomed questions.

No questions were asked.

8d. **Discussion of ALMA Fact Sheets (STC-542D-ALMA)**

A. Marconi asked if there were any comments on the Fact Sheets.

No comments were raised.

8e. **Report from ESAC**

A. Marconi thanked E. Sadler for her report and welcomed questions.

R. Ivison asked for clarification about the ESAC recommendation for cycle 3 capabilities.

E. Sadler responded that it was not clear to her either. L. Testi added that the last chance to make modifications had been a few months ago.

E. Sadler asked if any recommendations could still be made.

L. Testi responded that no recommendations could be made at that stage for Cycle 3 as it was too late. However, it needed to be kept in mind that Cycle 4 capabilities would be
finalized by summer 2015. Therefore, the next meeting of ASAC and ESAC was the meeting to provide feedback on Cycle 4 capability.

E. Sadler admitted that there was a lack of communication with ASAC and ESAC but things would get sorted out before the Cycle 4 meeting.

M. de Vos asked for further clarification regarding the recommendation about data delivery of partial data. He questioned why there was a delay of at least three more months.

E. Sadler responded that that was the ASAC recommendation and it seemed to be a sensible plan. That was a way to make it operationally more straightforward.

I. Smail commented that it was at some level driven by the array configuration.

E. Sadler agreed with that statement.

9. **Directorate of Operations**
   9a. **Directorate of Operations Overview (A. Kaufer)**

A. Marconi thanked A. Kaufer for his report and welcomed questions.

A.-M. Lagrange asked why X-shooter did not have a lot of allocated time and whether the OPC was briefed about the status of each instrument. She inquired if the OPC was aware of the future plans for each instrument's lifetime.

A. Kaufer responded that the OPC had information about which instruments were offered and how much time was available. The lack of time was a result of added pressure on VIMOS to be ready for spectroscopic surveys. Additionally, bright time was allocated for the SPHERE commissioning. That item had not been properly foreseen the year before.

R. Ivison added that the OPC was briefed as much as possible and that B. Leibundgut and J.-P. Berger would be present at the upcoming OPC meeting to increase the amount of information.

A. Kaufer added that major simulation was required for proper prediction, as it was a complex process.

S. Vennes asked whether there was mention about fixing the problem with the atmospheric correction of X shooter.

A. Kaufer responded that he did not mention that but it should have been mentioned earlier by L. Pasquini.

S. Vennes responded by asking if it had been completed.

A. Kaufer replied that that had not been done but the project was in preparation. He elaborated that it was beyond a simple repair of the ADC, which could be handled by the observatory. That was the reason for requesting help from the instrumentation programme. He added that it was difficult to phase that activity into the running programme since it was unforeseen.

L. Pasquini added the he could provide the full story, if requested.
A. Marconi asked S. Vennes if he wanted to have the full story.

S. Vennes responded positively.

A. Marconi asked for a quick explanation.

L. Pasquini elaborated that the ADCs were not accessible and could only be directly inspected when the spectrograph was dismounted. Diagnostics had been done a year ago. The cause was suspected and two plans had been designed. One plan was to remove the instrument for six months to implement a full new mechanism, while the other plan was a much simpler repair. H. Dekker (the project manager) had recommended to wait as there had been a planned inspection for September 2014. At that inspection the behaviour was found to be different than at the previous investigation, which resulted in uncertainty to the cause. The present plan was to build a full copy of the mechanism and test it in Garching to investigate the probable temperature dependence (it got stuck when cold).

A. Marconi thanked L. Pasquini and asked if S. Vennes had additional questions.

S. Vennes responded negatively.

S. Feltzing asked for elaboration on what the impact of the 1.3 million and 5.25 FTEs for the 8-m Coater repair project was on other things, such as the additional effort required for CRIRES.

A. Kaufer responded that it was all effort by external companies and Paranal, and Paranal effort was gained by stopping other projects. The money was a combined effort from operations and the organization, as it was more than 10% of the Paranal operations budget.

A. Marconi thanked A. Kaufer and asked if there were any additional questions.

There were no additional questions.

**9b. Update on the NTT call (A. Kaufer)**

A. Marconi thanked A. Kaufer and welcomed questions.

A.-M. Lagrange asked whether the PI instrument mentioned in the second mode of usage would be for the exclusive use of the team.

A. Kaufer responded that this was true and that financial compensation would be asked for the use of observing time. There would be little interaction with the observatory. The only concern was that the instrument met certain well-defined interface and safety standards that already existed at La Silla.

M. Meyer declared a possible conflict of interest as his institute had people who were involved in these proposals. He asked whether the desire was to liquidate all of the NTT in that process or whether there was a plan to keep some fraction for the community.

A. Kaufer answered that up to 50% for five years was given for the time being, while the rest was secured for the community.

M. Meyer’s interpretation was that it was up to 50% of the time for one of the projects.

A. Kaufer responded that it could all be taken by one project (up to 50%).
M. Meyer asked how that worked with the OPC time, which had already gone through or would go through with that time constraint.

A. Kaufer responded that the OPC would be informed of that limit. M. Meyer tried to clarify that based on the two proposals that were going to be bought, as there was a 360 day proposal at the OPC. He supposed that that programme would finish before the new instruments were online.

A. Kaufer agreed that that programme would be completed before the right new instruments were online and that the review panels already looked into that, keeping in mind what the timing of these potential projects would be. Any proposal should be completed within four years and the assumption was that no new instrument would be completed before that timeframe.

M. Meyer asked whether the 50% limit was therefore in place from that moment onwards.

A. Kaufer agreed and stated that the 50% would phase-in with time.

A. Marconi thanked A. Kaufer for his report.

9c. **Hosting telescope projects (B. Leibundgut) (STC-545) [*]**

A. Marconi thanked B. Leibundgut for his report and thanked ESO for the quick reaction to the STC's recommendation of these telescope projects.

I. Smail asked if that applied to the two requests, which had appeared 6-12 months ago (SPECULOOS and EXTRA).

B. Leibundgut responded that that process had not been implemented yet, since it was awaiting STC recommendation and that A. Kaufer was at that moment handling the proposals, while he was providing some scientific input.

A. Kaufer added that the technical evaluation had happened with a special focus on the STC's recommendation to look at the non-impact of the site operations and ESO effort. He stated that the reports from the two reviews had just been received and that there was a specific recommendation for the sites to host the two proposals (i.e., one should go to Paranal, while the other one should go to La Silla).

I. Smail responded that the specific issue was the site and declared he was happy that it was already looked at. He added that he was worried that there were no specific processes in place to determine, if a proposal needed to go to Paranal.

A. Kaufer answered that he followed the previous recommendation to look at the site.

A. Marconi asked if there were any additional questions and thanked B. Leibundgut once more.

9d. **Discussions**

9e. **Discussions of Directorate of Operations Fact Sheets (STC-542A-DOO)**

A. Marconi asked if there were any comments that had not already been addressed.
S. Feltzing reflected about the strategy of dealing with the aging population of instruments and facilities. She used UVES as an example asking how ESO would deal with the breakage of the blue-arm – would one refurbish or leave it out? She asked how that would fit into the ramping down of FTEs on Paranal.

A. Kaufer responded that the focus had been on the telescopes (as instruments were useless without them). The observatory had a project running over several years with quite some money to ensure that the telescope was refurbished (particularly electronics), with the goal to maintain but not to improve the telescopes. The lifetime of the telescopes was expected to be 25 years. It was therefore expected that after 10-15 years maintenance would be needed. Now that the instruments were expected to live longer than originally thought, that issue needed to be addressed.

A. Kaufer responded that FORS had a very sophisticated maintenance programme: every time it went off, three days were used to completely rework the instrument, which was probably the reason for its longevity. Other instruments had different maintenance schedules.

L. Pasquini added that internally there was a difference between maintenance and upgrades. The agreement so-far was that maintenance was the task of the observatory. Major changes/ upgrades were taken up by the Instrumentation Programme in Garching. There were cases (e.g. NACO), which were started and studied by Paranal. However, they had gotten too big for Paranal and therefore had been taken over by Garching. A closer look at the division between maintenance and upgrades needed to be done. In some cases, e.g. for extraordinary maintenance, the expertise existed in Garching. For the upgrades, the current working way was to pass through the Instrument team and be evaluated by the Instrument Operation Team (IOT) where all upgrades were centralized in terms of request and evaluation.

M. Meyer stated that the STC would like to see a reasonable strategy over the whole life cycle of new instruments, refurbishments and maintenance instead of the case-by-case basis done at that moment.

A. Kaufer agreed to that and stated that refurbishment was not included in planning. It was all about planning and having time to react. He used NACO (and a car analogy) as an example of an instrument, which was all of a sudden requested to operate for an additional 5 years. He continued that it also needed to be addressed and planned for, if instruments were now expected to live 15 instead of the originally planned 10 years. This was something these instruments were not designed for but the telescopes were.

S. Feltzing asked what the definition of refurbishment versus maintenance was.

A. Kaufer clarified that refurbishment was one way to maintain performance and availability and corresponded to a specific level of maintenance. Lower level maintenance was defined by more regular preventive and corrective activities. If it became evident that something was going to break, a more invasive plan to refurbish the instrument would be required (which could include rebuilding or even buying again). At the highest level of maintenance one had to build a completely new system to replace the old one. The extremes (preventive/corrective maintenance and building new systems) were handled really well by ESO but there was a gap in the middle.

The DIRECTOR GENERAL added that it was his understanding that refurbishment required bringing the instrument back to where it had been built and that it typically involved replacing the part and did not involve bringing in a new technology.
A. Kaufer added that sometimes it could be cheaper to bring in a new technology.

A. Marconi asked if there were any other questions.

A.-M. Lagrange commented about the high VST technical downtime and asked about the expected technical downtime for the future. She asked how much effort was placed on Paranal for that downtime.

A. Kaufer responded that the downtime requirement on the UTs was below 3%. If the same requirement was forced on the VST, then 50% of the Paranal engineering effort would go to the VST. Therefore, the requirement number was relaxed to 8%, and anything below 10% was under control. That still required 15-20% of the effort of the Engineering Department to keep it at that level; for one telescope out of the 10 telescopes at Paranal.

H. Van Winckel commented that there was no solution – it either required more effort to make it more stable or one had to live with the 8% downtime.

A. Kaufer responded that Paranal had been running several projects over the last years to improve maintainability and sometimes to improve performance. The big numbers shown in his report were usually driven by single events (e.g. a major failure of the adaptor/rotator) and that was what ESO signed up for when it agreed to run that telescope.

A. Marconi asked whether the issue of obsolescence of instruments was analyzed in the science prioritization/instrumentation programme. This was a problem already mentioned 6 years ago for the workhorse instruments (like NACO – loss of a diffraction-limited imager). It was his fear that that problem would still be around for the future. He asked where that problem was being dealt with (in the science prioritization or the instrumentation programme).

R. Ivison responded that it was part of the science prioritization in that all Programme Scientists prepared documents. One document was being prepared by B. Leibundgut for the VLT.

B. Leibundgut added that it was something he was dealing with. It was being discussed in working groups. There was a proposal to these working groups but it was too early to know in which direction things were going.

A. Marconi asked if the steps needed to connect to the new instruments with the replacement of the workhorse instruments had already been done or whether B. Leibundgut was working on that.

S. Feltzing asked about the refurbishment aspect, which could come out of the blue. She added that the STC felt like it should be part of the decision process, after the technical and science evaluation. She asked if there was a process that could involve the STC.

B. Leibundgut replied that there would be a workshop in January 2015 where some of these issues would be discussed. By April 2015 there should be a proposal on the prioritization. The STC would receive a presentation of every instrument, which was planned to be brought to the telescope. That was what was being done at that moment. Therefore, there was no plan to deviate from that.

A. Marconi asked if there were any additional comments but there were none.
Meeting closure

A. Marconi added that there was an issue regarding organizing 3 meetings of the sub-panels on the same day.

R. Ivison responded that that was the issue, which had triggered a brainstorming session.

A. Marconi thanked Svea Teupke for all the organization she undertakes.