PFS acceptance process (draft)

0. SAC interview to understand the current situation of PFS (Feb. 2015?)

1. agreement between Subaru community and PFS team on minimum and target performance/functionality

2. Decision of FMOS decommission (May-June 2015?)

3. Readiness review for shipping to Subaru (most subcomponents send directly to the summit)

4. Readiness review for daytime engineering at the summit (if the system assembles at Hilo base facility)
5. Readiness review for night time engineering
   = operational readiness review
   => start engineering observations

6. Review after each engineering observation
   - review engineering results every time after each observation block

7. Review for starting open-use (=> start science obs.)
   - on-sky performance
   - operational stability

8. Final acceptance review
   - hand-over materials
   - final maintenance plan
   - etc.
Why decommission FMOS first?

1. Original plan
   - Make new floor on IR 3\textsuperscript{rd} of the dome
   - Place PFS spectrograph on IR 3\textsuperscript{rd} floor
   - PFS commissioning while FMOS is still in open-use
   - ... then decommission FMOS at appropriate timing

   So, we
   - asked PFS team to reduce the weight of the spectrograph as much as possible
   - analyzed the additional mechanical load if PFS in addition to the FMOS is placed on the IR 3\textsuperscript{rd} floor

2. ... But this plan found to be technically too difficult
   - To hold the weight of both FMOS and PFS requires reinforcement of MANY structural beam of the dome and it costs a lot.
   - Capacity of the facility electricity and coolant flow are short
It is not impossible, but is too hard to do it at the viewpoint of budget and resources of Subaru.
Subaru community chose Decommission of FMOS before PFS is commissioned in order to realize the PFS.

(It was agreed at the Subaru UM FY2013 and approved by SAC.)

Subaru will lose its unique function of wide-field multi-object spectroscopy in near IR at least 3-4 years.

- FMOS is a unique instrument and getting be a productive instrument.
- We need to minimize the gap between FMOS decommission and PFS commission.
## Alternatives / Uniqueness

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Publication/night (IR)

~ 5 papers / 15 nights

Caveat:
small statistics for COMICS
(Publication < 1 after 2008)
Publication/night (S01-S12)

IR: ~ 5 papers / 15 nights
Opt: ~ 10 papers / 20 nights
No of publication: IR instruments (w/o duplication)

 allocation
... so, the question is: When should we decommission the FMOS?

- We need to decide decommission before start of PFS assembling (parts level assembling may just be started).
- If FMOS decommission delays, PFS survey delays, which could imply loss of leadership of PFS among other survey projects, especially in cosmology.

competitors:
- 2.5 m: eBOSS(funded),
- 4 m: DESI (funded almost secure), 4MOST(funded), WEAVE(funded),
- 8 m: MOONS(funded), HETDEX(funded)
- space: Euclid(funded), WFIRST-AFTA
Decision criteria for FMOS decommission

Bottom line is to minimize the gap between FMOS decommission and PFS commission.

Decision criteria is being discussed

- **sufficient budget** is secured to complete the instrument
- Schedule is well defined and the **risk of delay** should be small

- What does “sufficient” mean? How much Contingency?
- What does “secured” mean?
- How do we evaluate the schedule risks?
- How do we validate the risk mitigation plan?
- How do we assure the expected performance in advance?

At some point, “director’s discretionary decision making” may be needed by considering the balance between maintaining current activity and the benefit in the future.