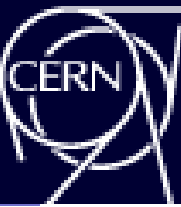


AD/ELENA (B193)

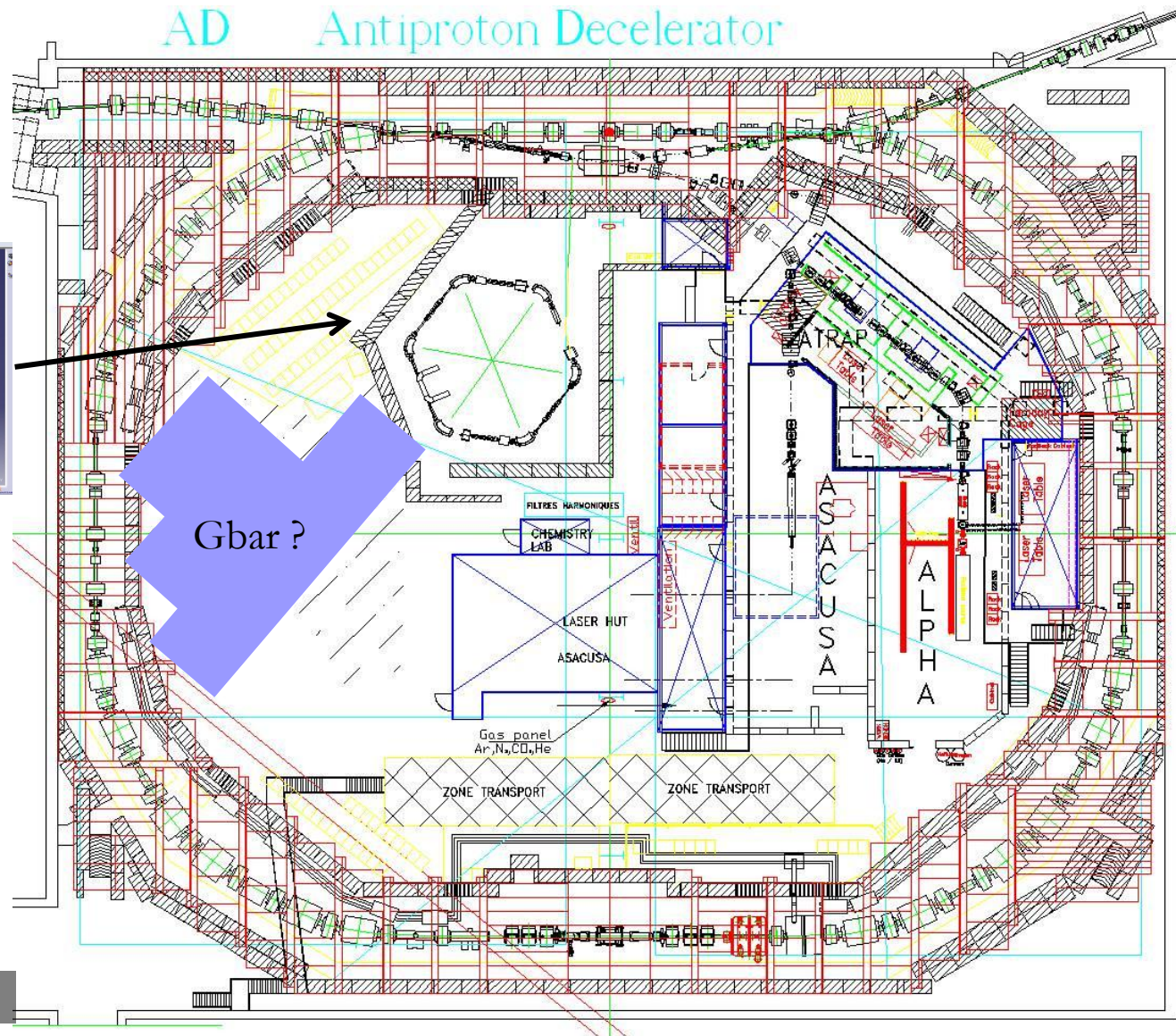
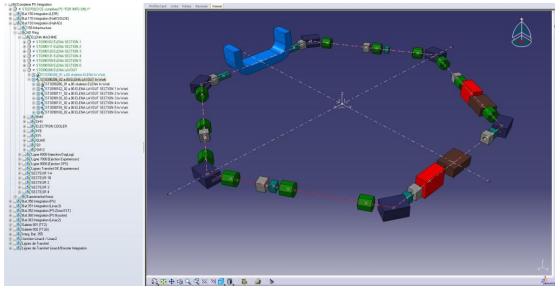
Integration and constraints

F. BUTIN / ELENA collaboration

Current layout 1

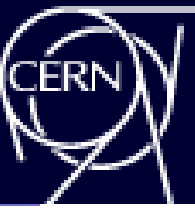


AD Antiproton Decelerator

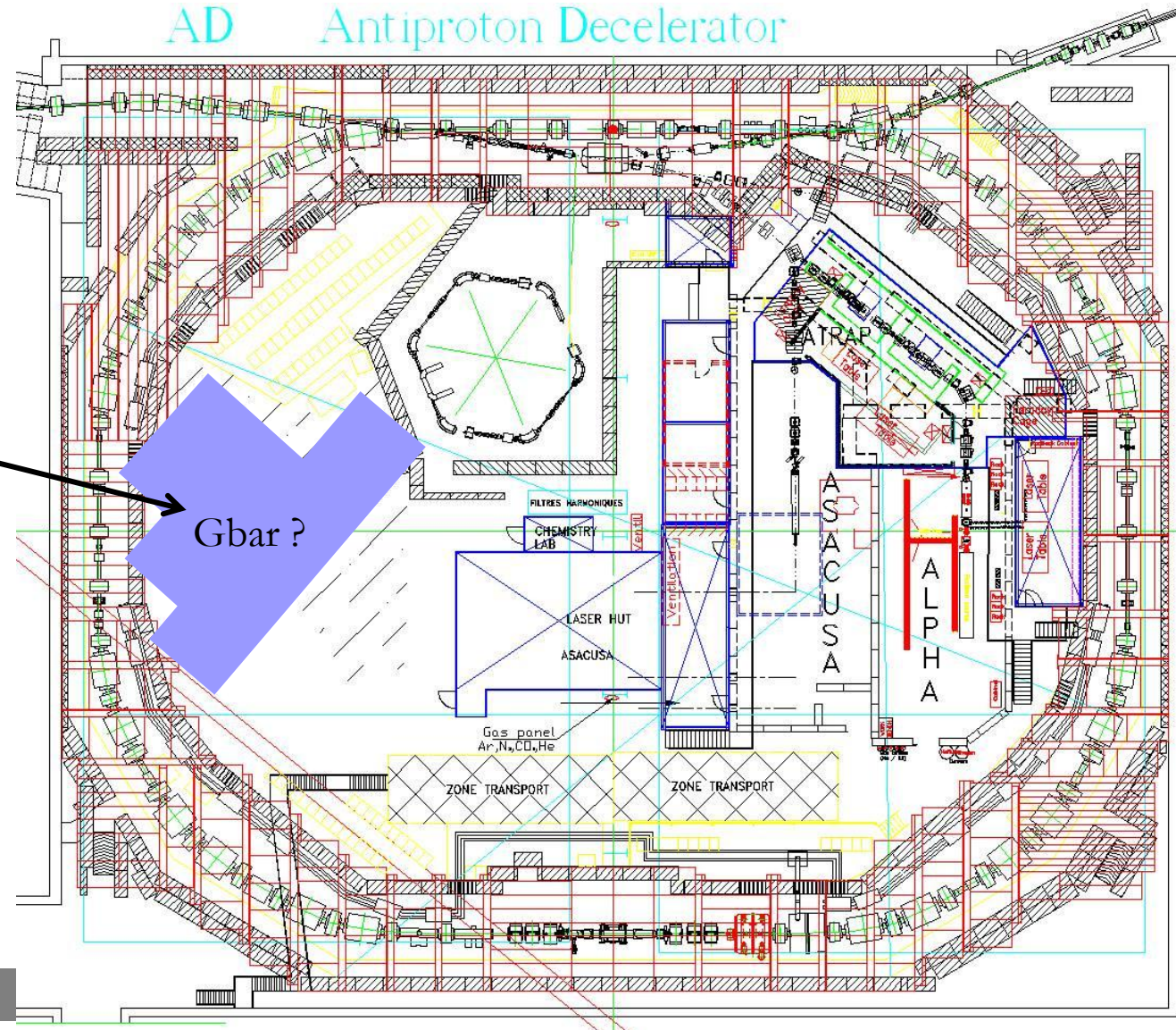
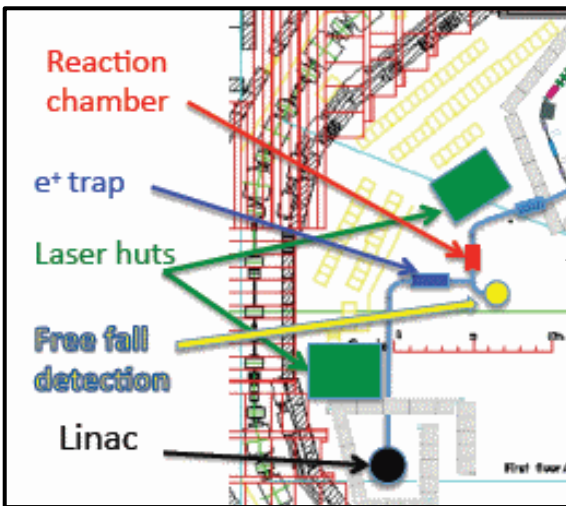


Sketch: O. Choynet / JM. Lacroix

Current layout 2



AD Antiproton Decelerator

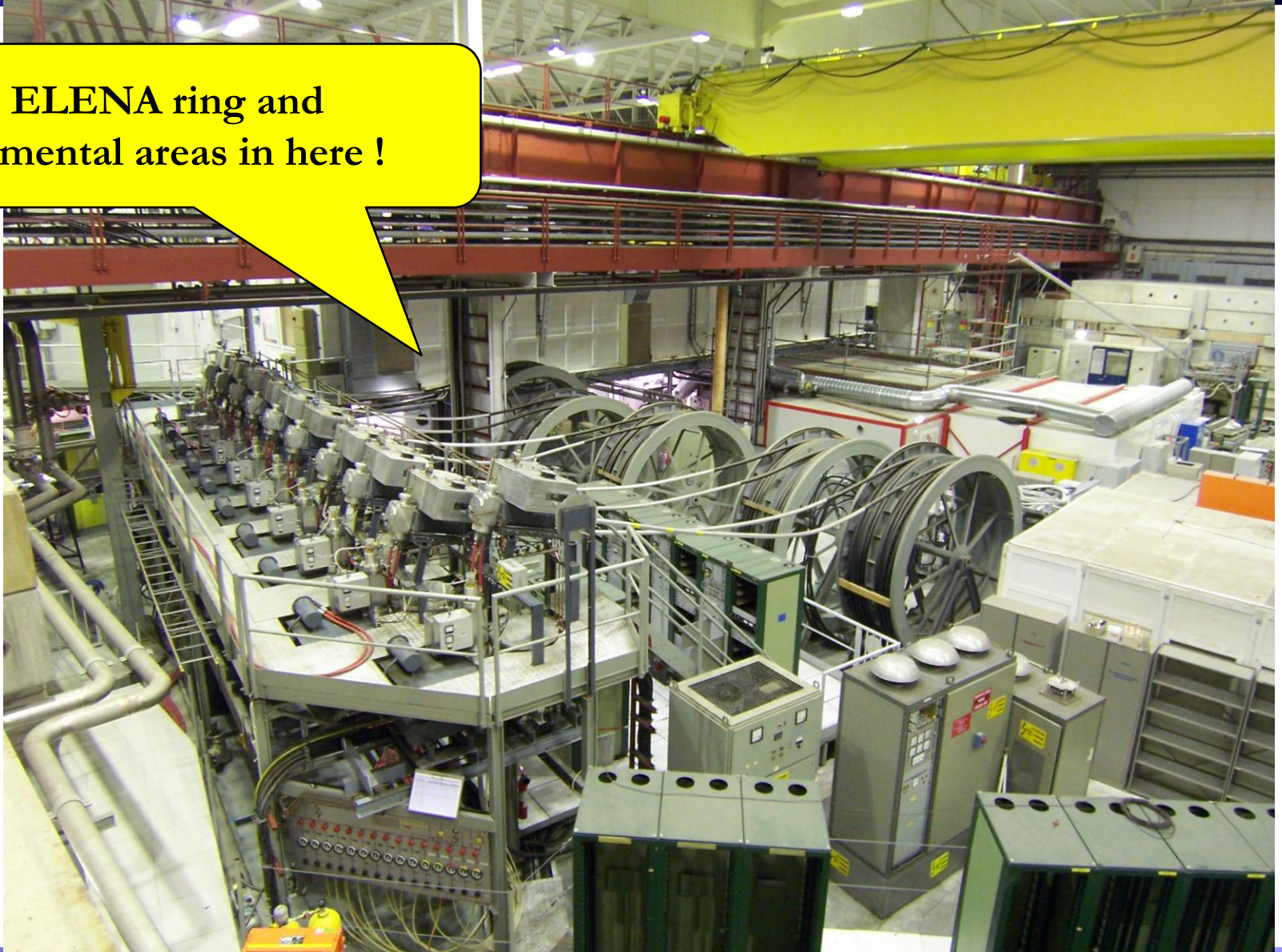


Sketch: O. Choisset / JM. Lacroix

Main integration challenge



**Fit ELENA ring and
experimental areas in here !**



How to split the challenge



Four main directions of work:

1. **Plan to relocate the existing workshop, kickers and experiments devices into a new building**
2. **Confirm space usage for ELENA (magnetic measurements, shielding, H+ or H- source)**
3. **Plan circulation, access, space for racks etc**
4. **Anticipate on future possible experimental areas**

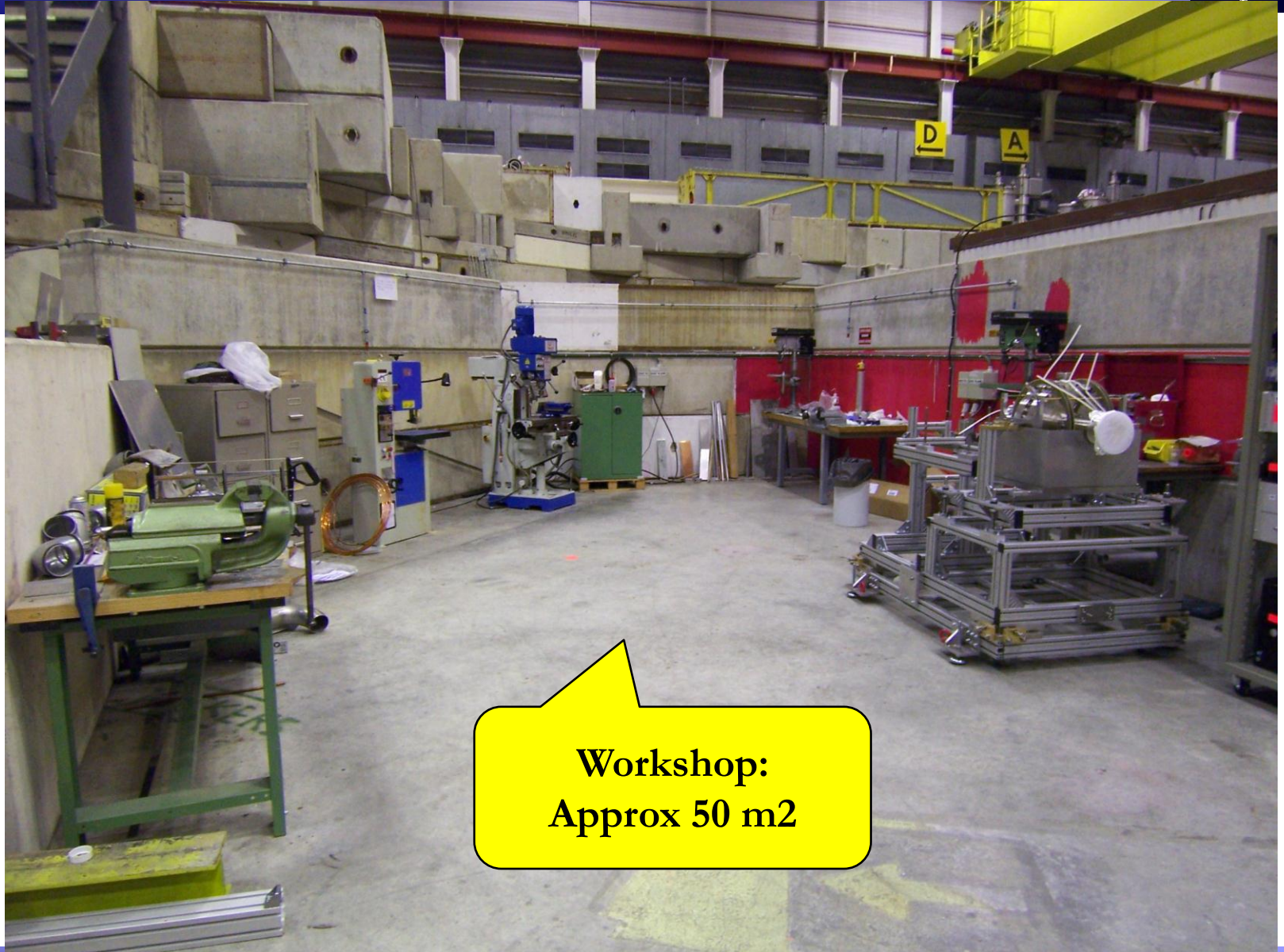
How to split the challenge



Four main directions of work:

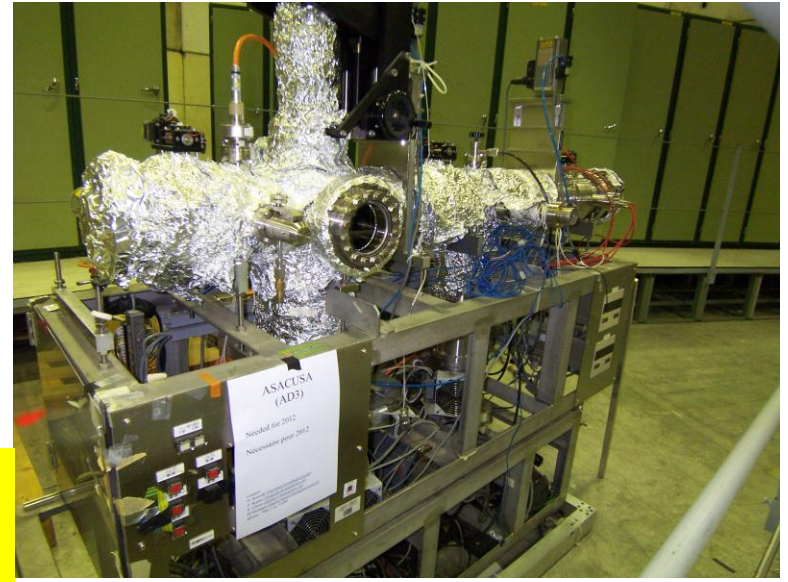
1. **Plan to relocate the existing workshop, kickers and experiments devices into a new building**
2. Confirm space usage for ELENA (magnetic measurements, shielding, H⁺ or H⁻ source)
3. Plan circulation, access, space for racks etc
4. Anticipate on future possible experimental areas

1. Relocate the existing workshop



**Workshop:
Approx 50 m²**

2. Provide short term storage

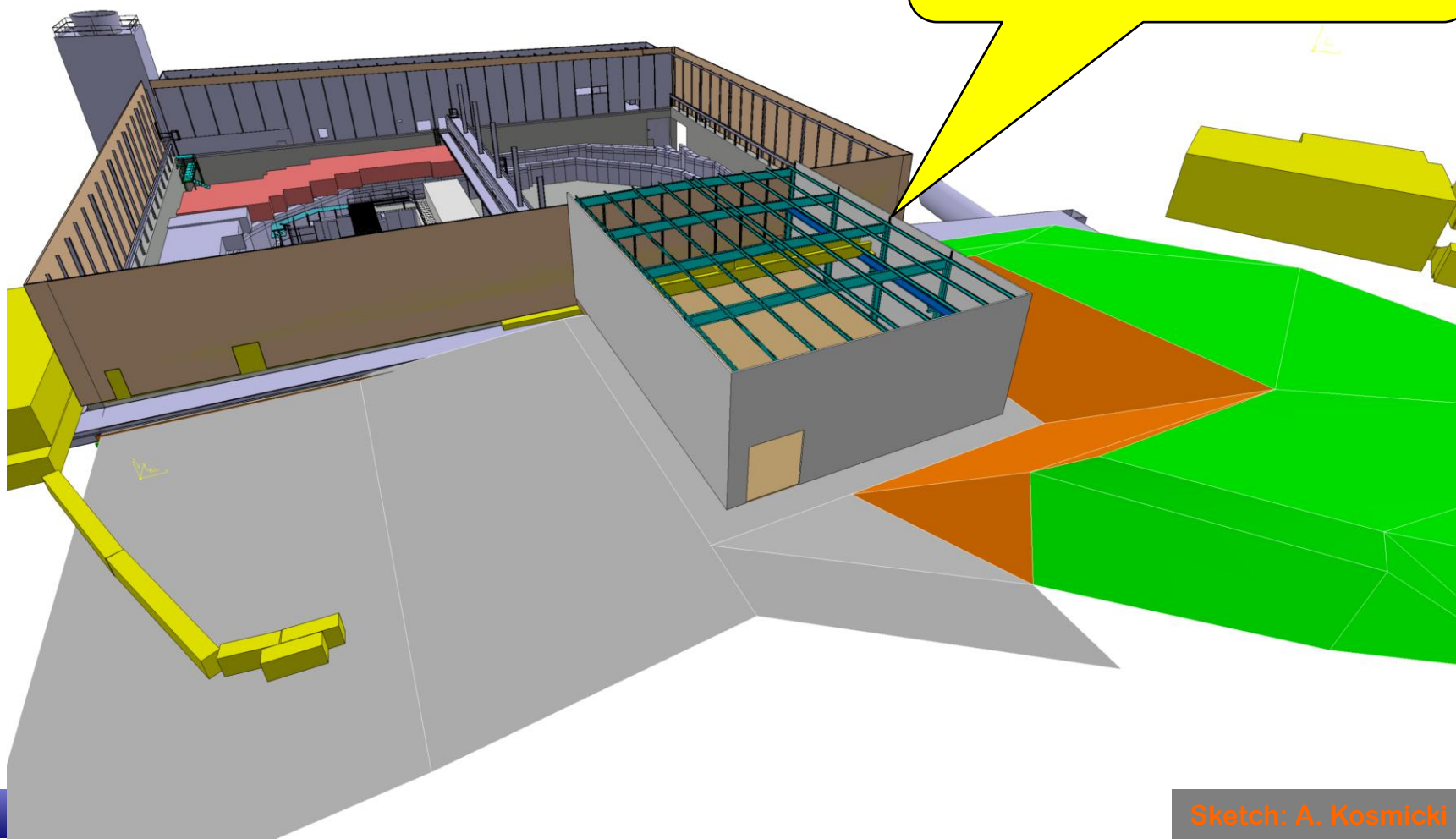


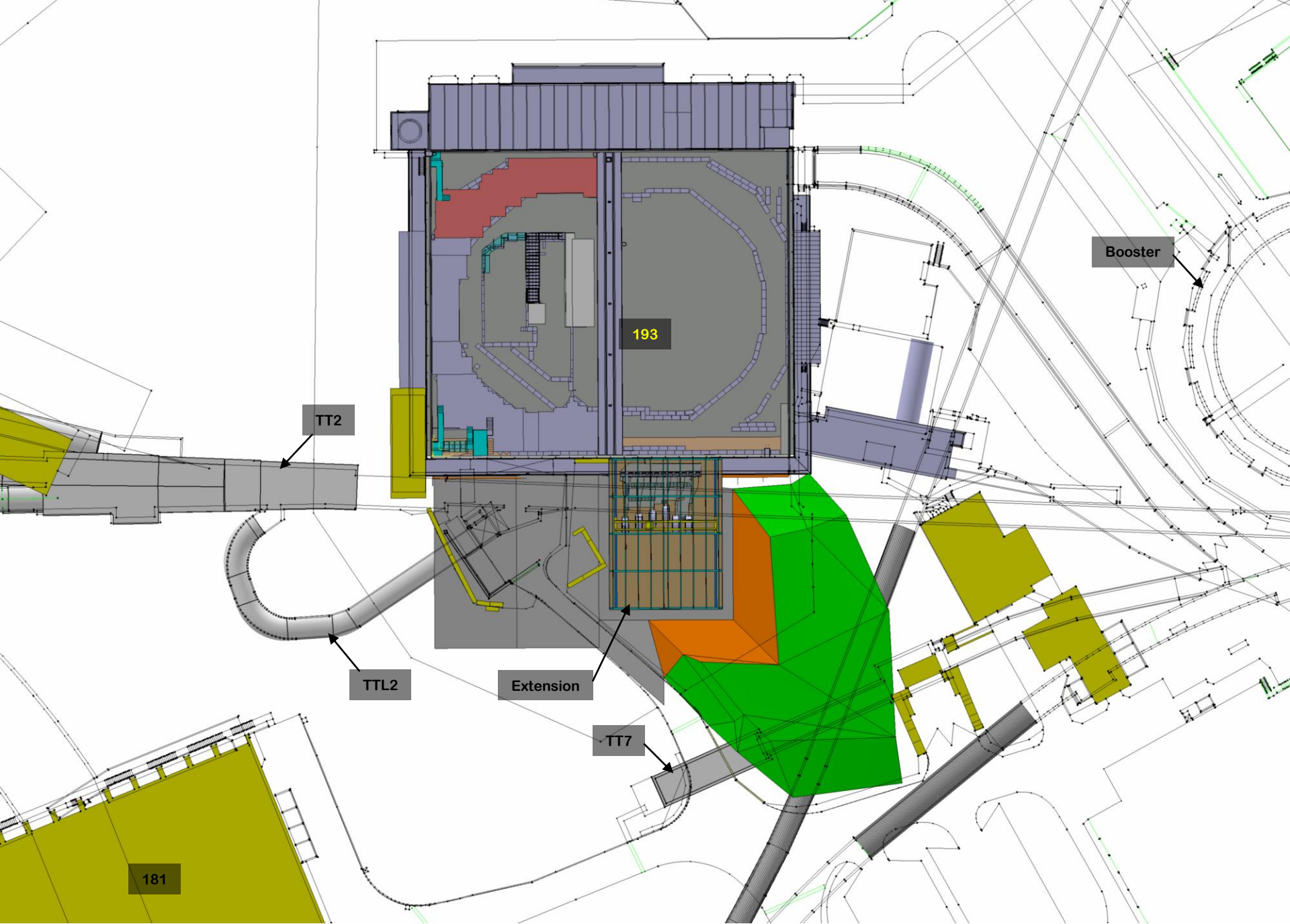
Delicate physics equipment stored all over the place...

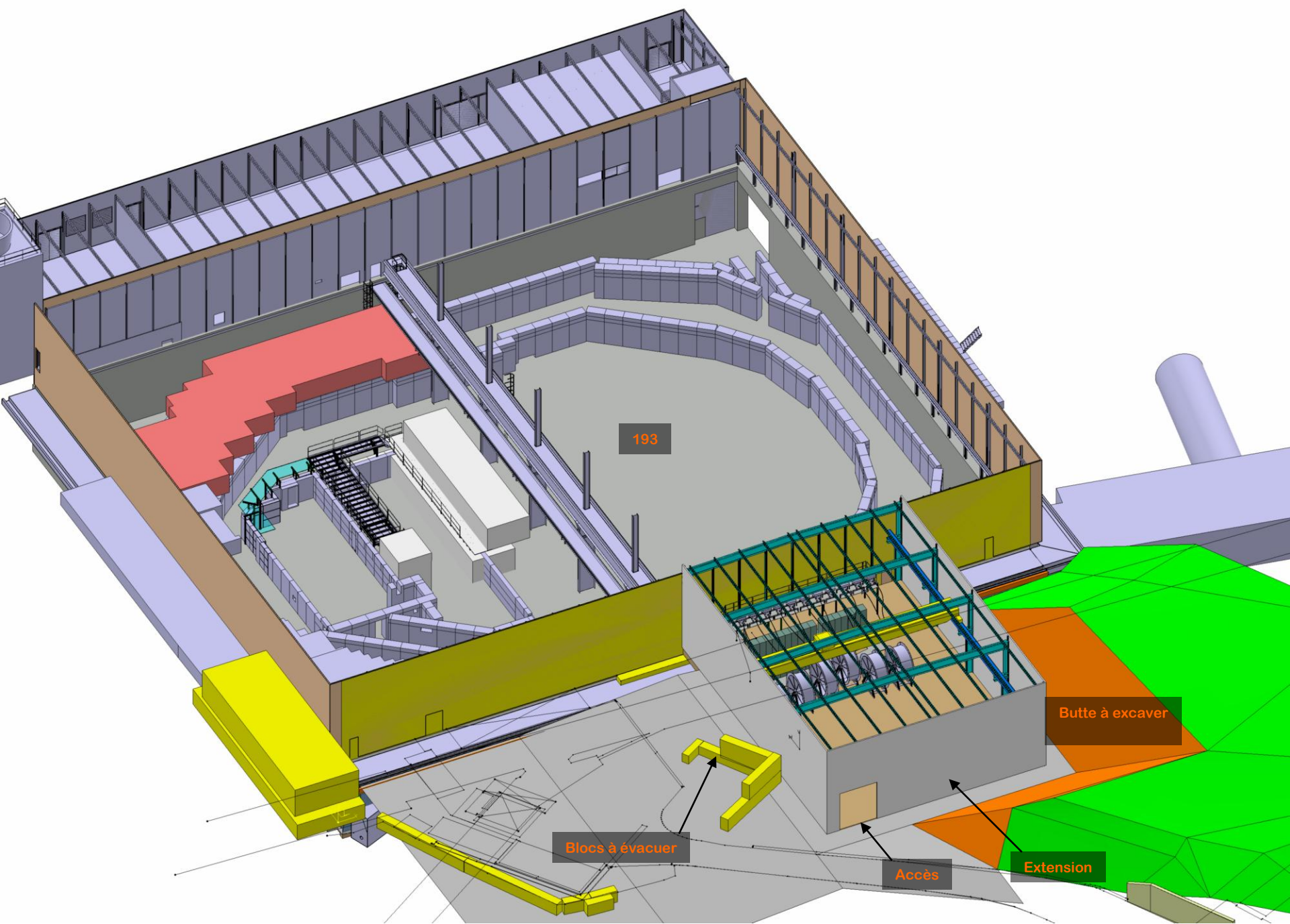
Solution : New building proposal



530 m2 AD hall extension







193

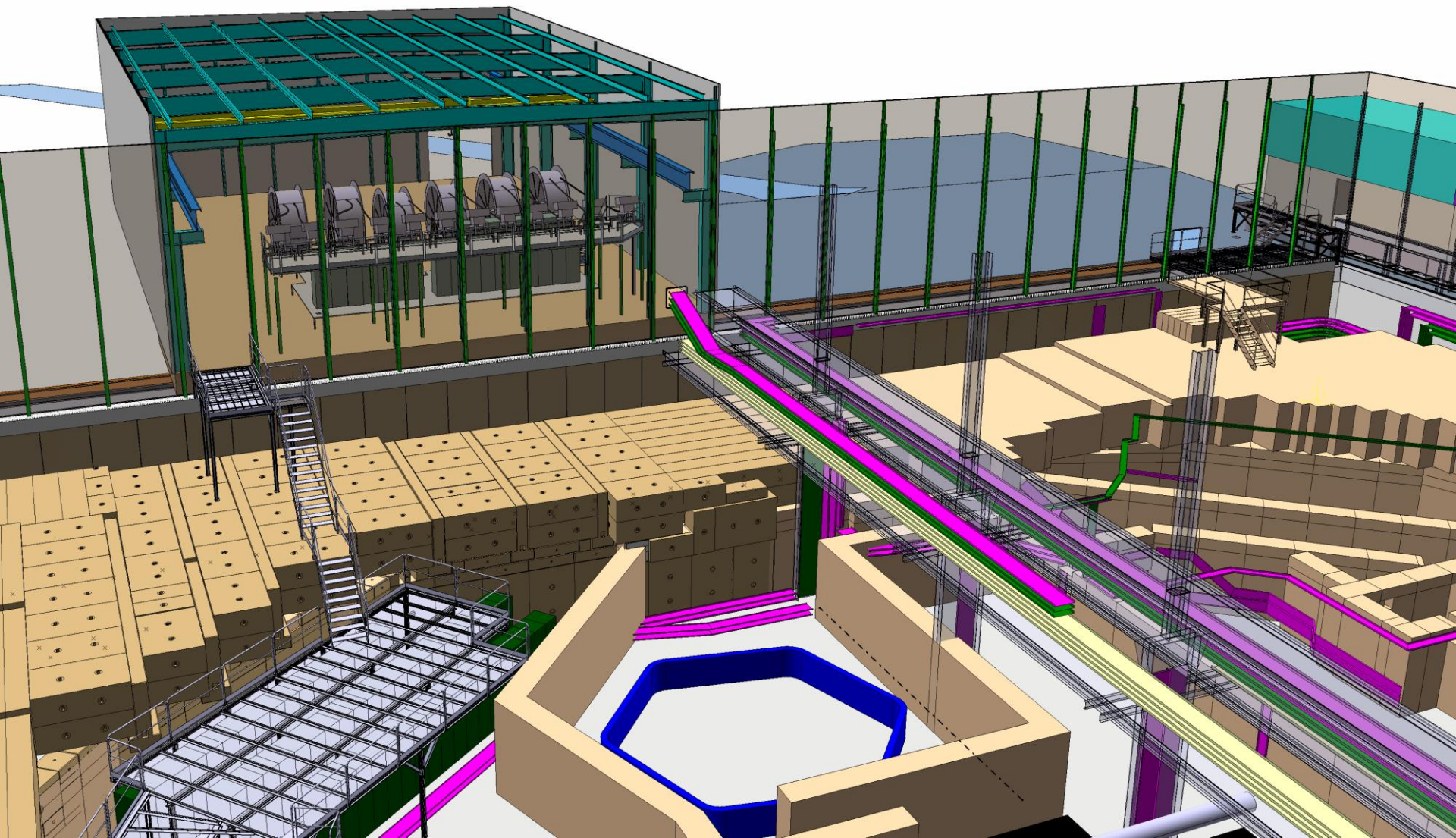
Blocs à évacuer

Accès

Butte à excaver

Extension

Complete CE project by A. Kosmicki and L. Lopez on EDMS# 1176220



New building schedule



Boundary condition: **Re-start AD in 04/2014**,
with kickers in their new location

- Building approval in 02/2012
- MS/CfT process 03/2012 – 01/2013
(10 months)
- CE works in 01/2013 – 10/2013
- (10 months)
- EL/CV/ kickers etc: 11/2013 – 03/2014

Conclusions for the new building



- The site is identified
- The pre-project and cost estimates are ready
- No technical issues identified, schedule is tight but achievable
- RP gave green light wrt operation of TT2 line and possible re-use of TT7 line with neutrinos
- CfT stage can be started with no delay
- GTPE approved the project
- **Financing must be secured / manpower must be made available (concurrency with LS1): discussions with directorate in progress**
- **Approval of site committee is expected end Feb 12**

How to split the challenge

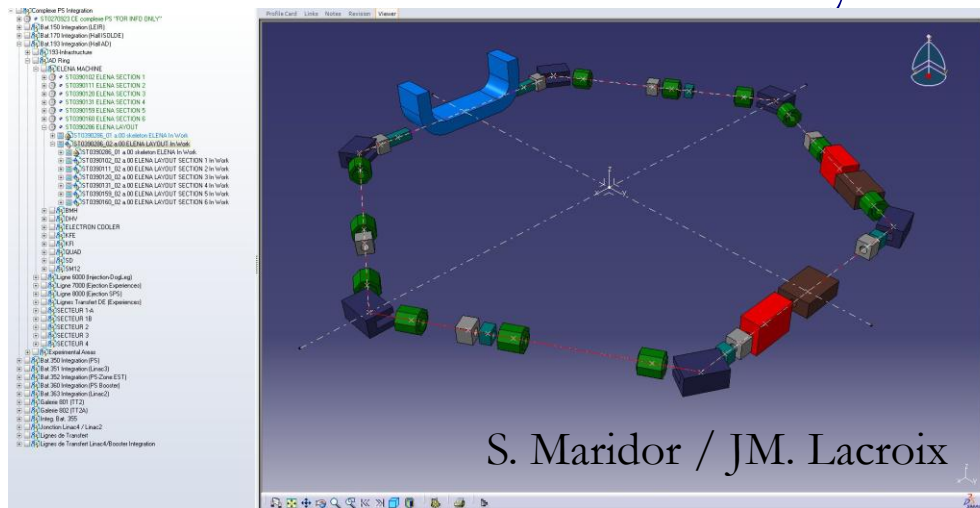


Four main direction of work:

1. Plan to relocate the existing workshop, kickers and experiments devices into a new building
2. **Confirm space usage for ELENA (magnetic measurements, shielding, H+ or H- source)**
3. Plan circulation, access, space for racks and services etc
4. Anticipate on future possible experimental areas

Confirm space usage

- Validate overall geometry (shape and dimensions of the machine, transfer lines, etc).
- Structure built in Catia ready to integrate layout



- Draftsman team is operational: S. Maridor, JM.Lacroix, N. Joannon, O. Choisset

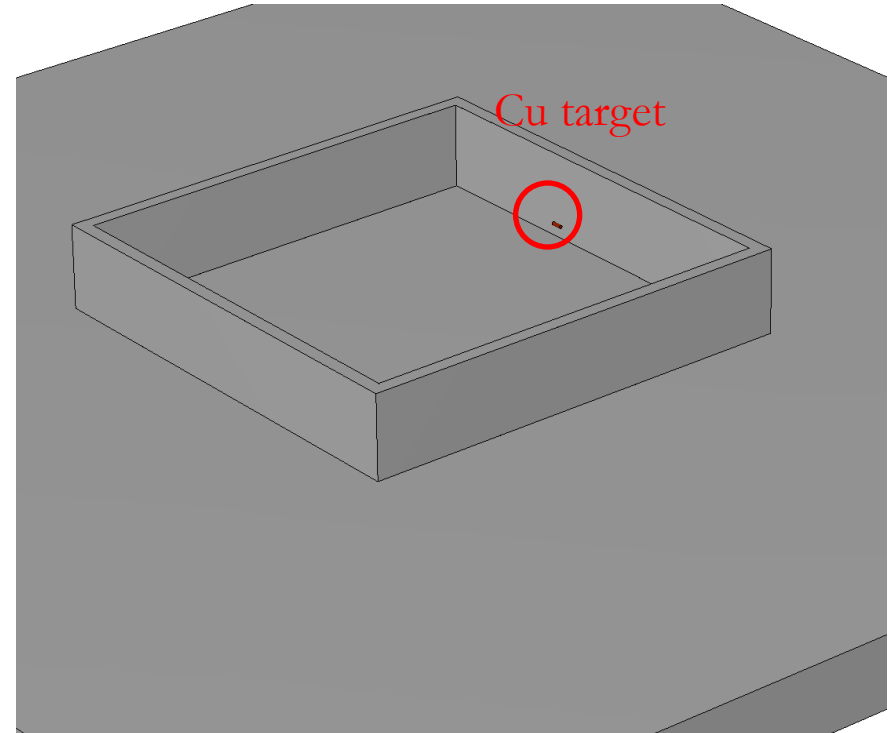


Confirm space usage

- Magnetic measurements were performed by TE/MSK to understand possible restrictions caused by AD magnetic environment: background $<2\text{G}$, no problem anticipated (see report from M. Buzio and S. Russenschuck)
- Location of H^+ or H^- source needs to be optimized wrt transfer lines. Integration is not expected to be problematic due to small surface required
- Shielding required: hypothesis is 40 cm all around, 2.4 m high, no roof. Being computed by RP (J. Vollaire)

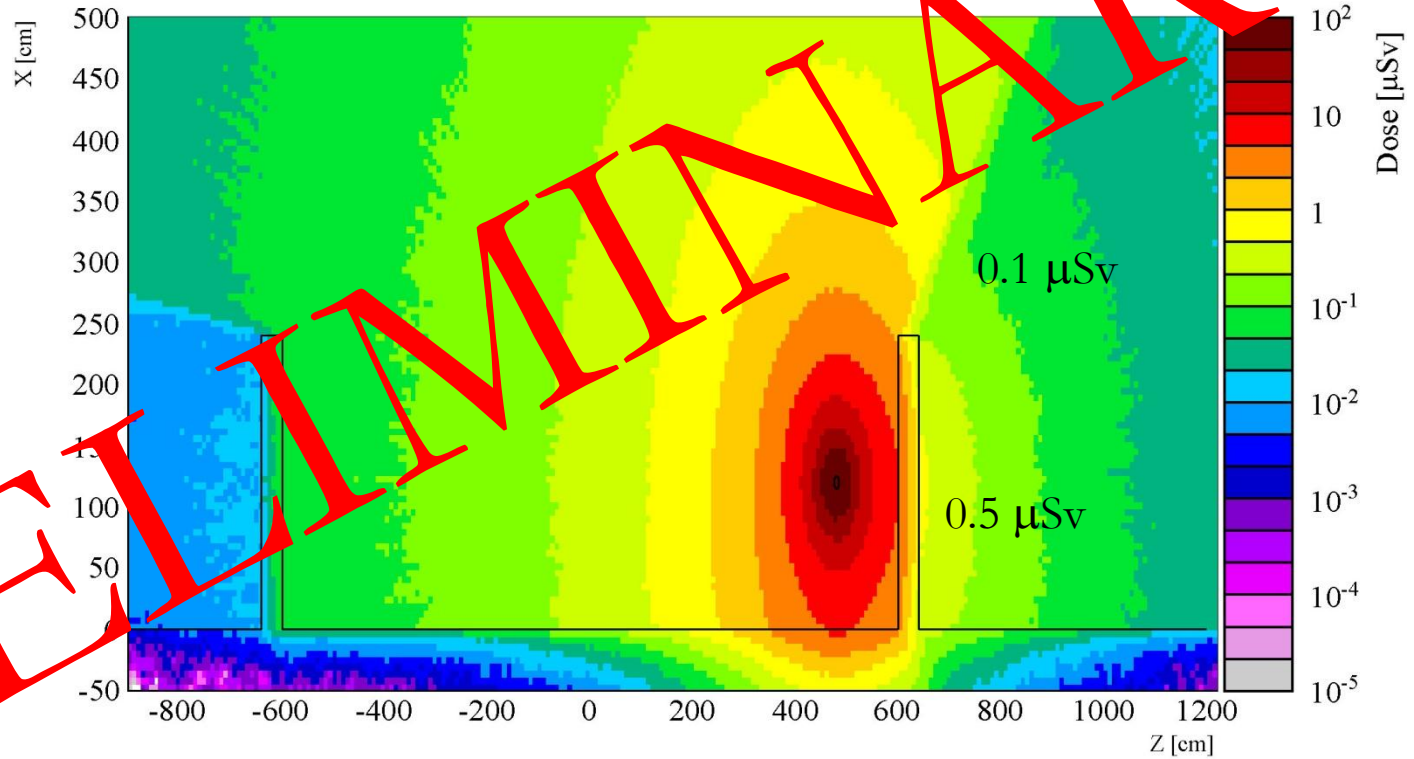
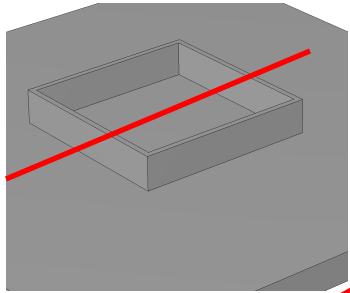
RP shielding simulations: Simplified geometry

- 40 cm thick walls 240 cm high
- 12 m x 12 m enclosure
- Beam impinging on a Cu target



Courtesy: J. Vollaire

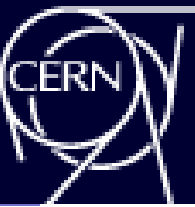
Considering a full beam loss (1e8 pbar)



PRELIMINARY

Courtesy: J. Vollaire

How to split the challenge



Four main directions of work:

1. Plan to relocate the existing workshop, kickers and experiments devices into a new building
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3. **Plan circulation, access, space for racks and services etc**
4. Anticipate on future possible experimental areas

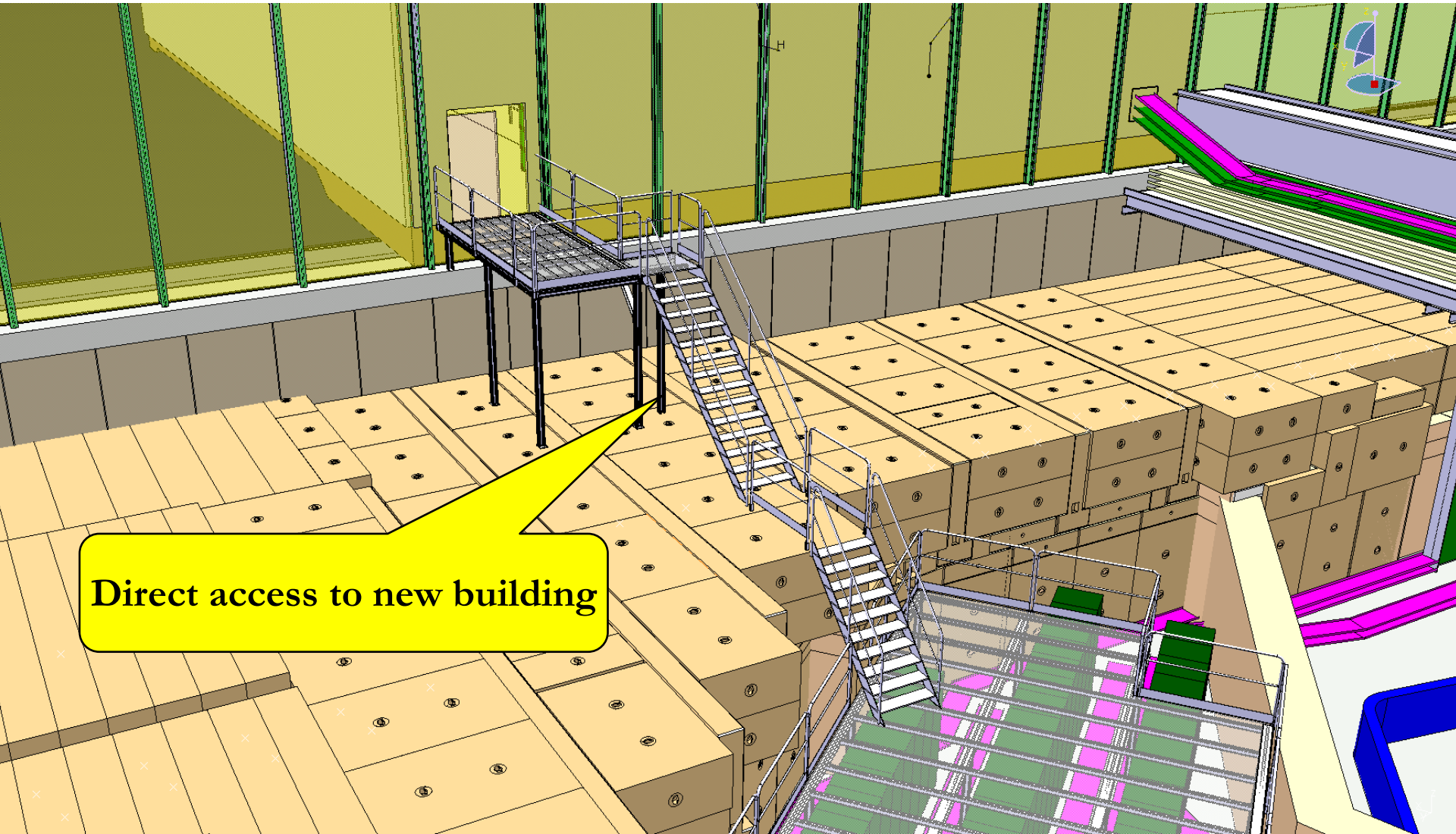
Plan circulation scheme and space for racks/services



- **Anticipate on new needs for circulation inside AD hall**
 - Propose new large gangway running along the shielding
 - Direct access into the new proposed building
- **Integrate visits possibilities**
 - Use this gangway for visits. Try to avoid roof over ELENA.
- **Plan space for racks and services (water, electricity, gas, cranes upgrade)**
 - This new gangway could be partially used for installing racks and as support for services underneath

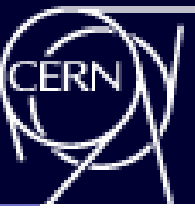
A 3D architectural rendering of a complex, multi-level structure, possibly a tunnel or underground facility. The structure is composed of various colored sections: a large yellow section with a grid pattern, a red rectangular block, a blue hexagonal structure, and several magenta and green lines representing conduits or pipes. A yellow callout box with a pointer highlights a specific area, labeled "New gangway proposal". The overall scene is set against a dark blue background.

New gangway proposal



Direct access to new building

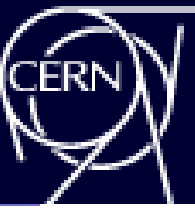
How to split the challenge



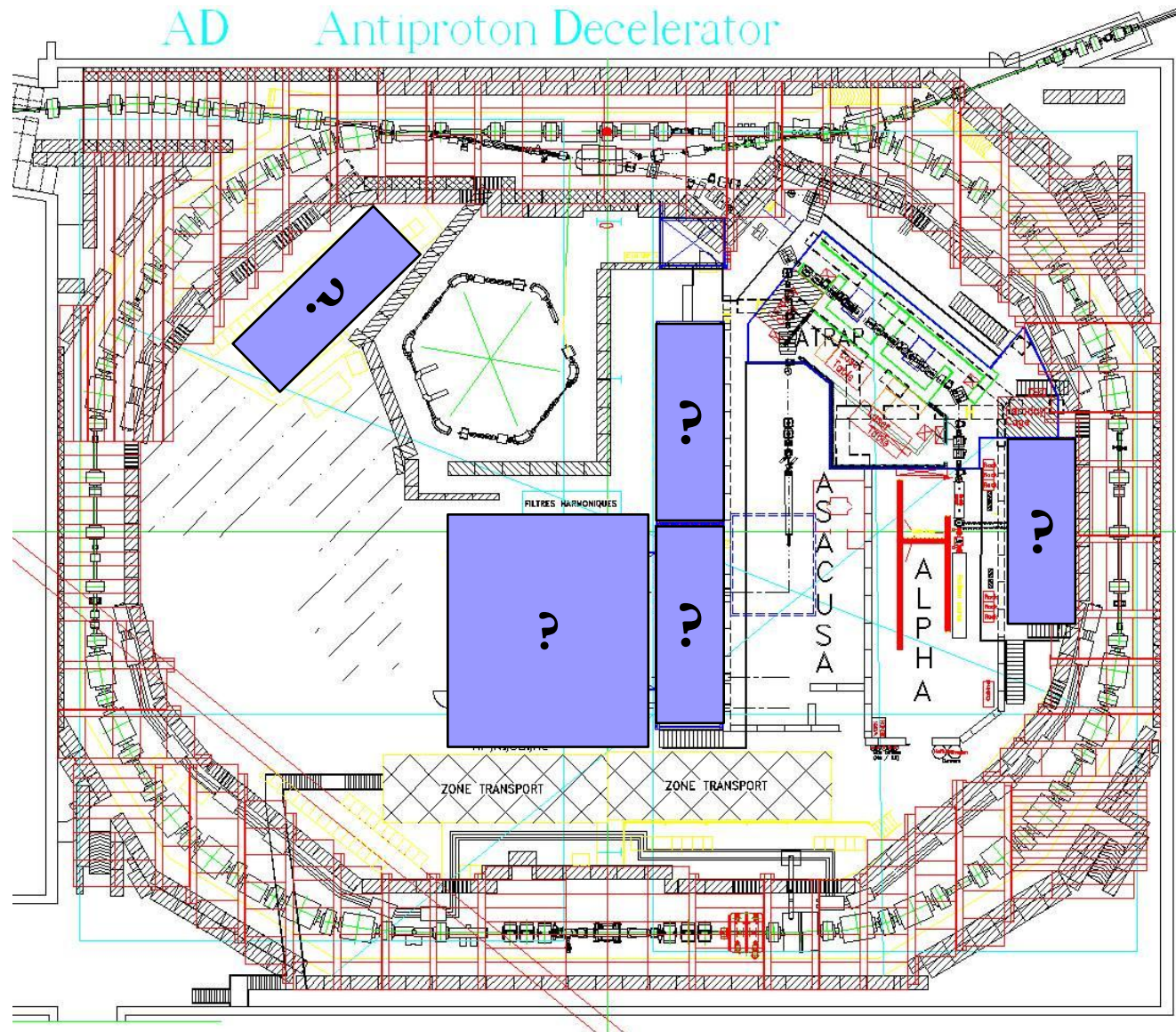
Four main directions of work:

1. Plan to relocate the existing workshop, kickers and experiments devices into a new building
2. Confirm space usage for ELENA (magnetic measurements, shielding, H⁺ or H⁻ source)
3. Plan circulation, access, space for racks and services etc
4. **Anticipate on future possible experimental areas**

Anticipate on future needs for experimental areas



Many possibilities
Listing best ones...



Conclusion

- **With the ELENA Project approved, antiproton physics will continue for the next 15 to 20 years**
- **A new multipurpose building is urgently needed for :**
 - Short term storage for delicate physics detectors, for existing and future experiments
 - Workshop for the experiments
 - AD kickers
 - Magnetic horn test bench
- **Based on this, and on a solid layout definition of the machine and transfer lines, we can progress on overall integration, shielding, accesses, services, etc...**

