

Planning & Plan tool

K. Foraz EN-MEF

PLAN
Methodology
Schedules



LS2 DAYS

29-30 SEPTEMBER 2015

<http://indico.cern.ch/event/436424/>

1 step - Announce what you have to do

- PLAN tool & documentation
- Machines committees: IEFC & LMC
 - executive committee concerned with all **technical and performance** aspects of the CERN accelerator
- Long Shutdown Committee: LSC
 - executive committee concerned with all **technical and organisational** aspects of the YETS and Long Shutdown

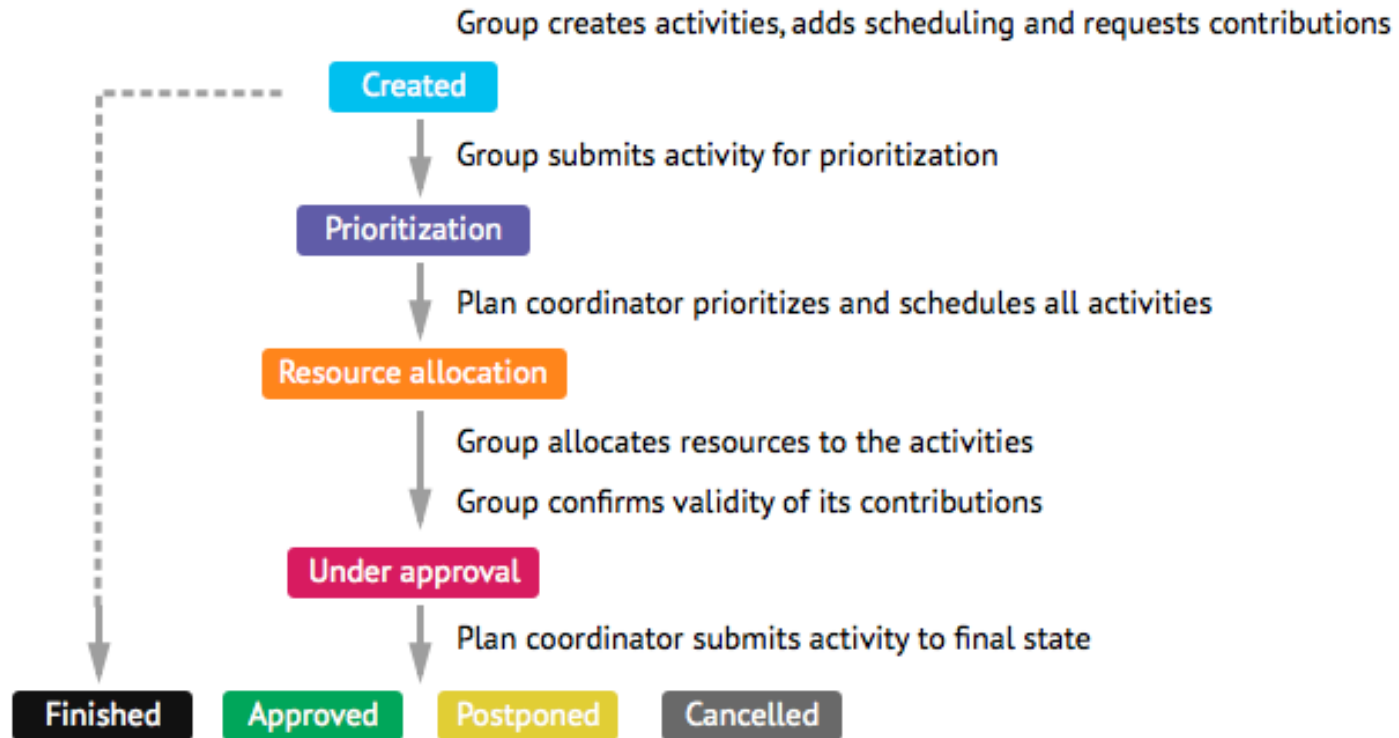
PLAN - Goal

Prior to the start of an LS, we need to define which works will be achieved and which are the potential options, based on priorities given to activities and the resources we have

PLAN = A unique repository gathering all activities for a certain period of time with a simple approval process

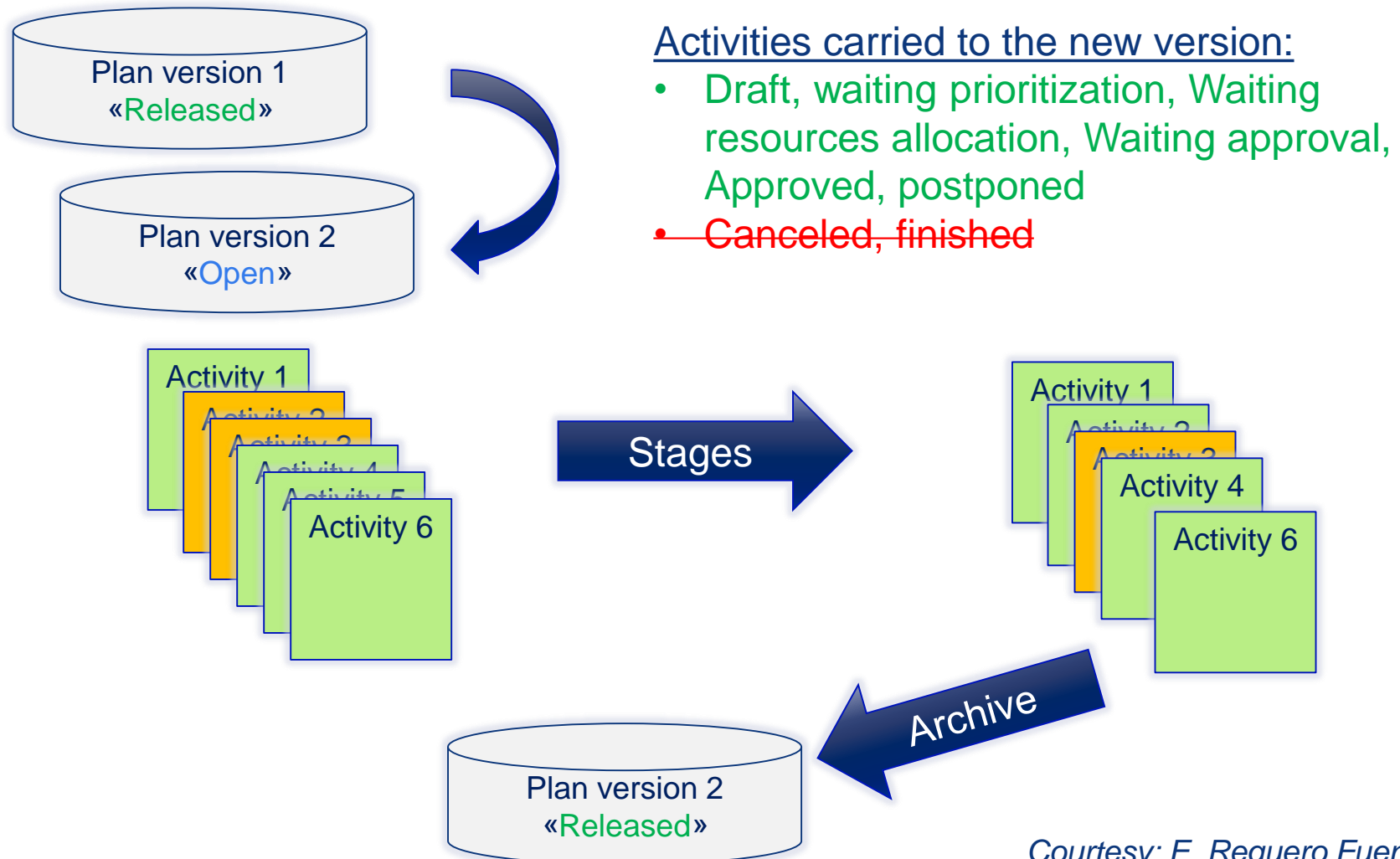
to harmonize the method to give decision makers and the support group a clear picture of the different requests, and their impacts.

PLAN- Activity Process



Courtesy: E. Reguero Fuentes

PLAN- Versionning



Courtesy: E. Reguero Fuentes

PLAN- Version 1 key dates

- Initialization: 16th September – 31st October
- Prioritization: 1st November – 15th November
- Resource Allocation: 16th November – 15th December
- Final Approval: 16th December – 15th January



PLAN- Roles

Roles	
Plan Leader	<i>J. Miguel Jimenez</i>
Plan Coordinator	<i>Katy Foraz</i>
Quality Assurance Manager	<i>Rachel Decreuse-Michaud</i>
Group Coordinator	<i>Group Leaders</i>
Group Plan Officer	<i>Nominated by Group Coordinators</i>
Viewer	<i>Org Unit, Plan, Project, Facility, ...</i> <ul style="list-style-type: none">- <i>Department Heads</i>- <i>Section Leaders</i>- <i>Facility Coordinators</i>- <i>Project Leaders</i>

PLAN- Which activities to introduce

- All the activities which :
 - Can have an impact on Performance of the facilities
 - Need the support of Other groups in term of resources: studies, designs, manufacture, tests, infrastructure modification
 - Need to be scheduled by facility coordinators
 - From 2016 to end of LS2
 - *[Experiments : to be discussed]*

PLAN- What does it look like ?

Plan Lifecycle of LS2 - Version 1

16-Sep-2015 31-Oct-2015 01-Nov-2015 15-Nov-2015 16-Nov-2015 15-Dec-2015 16-Dec-2015 15-Jan-2016

Initialization
initialization.description

Prioritization
Plan coordinator prioritizes and schedules all activities

Resource Allocation
Group allocates resources to the group contributions and confirms validity of the requested contributions

Final Approval
Plan coordinator submits activity to final state

Activities managed by all groups

29

Created
Prioritization

Select the group responsible for this activity... Select a value in the Work Breakdown Structure (WBS) of the pl...

Group contributions from all groups

18

Not Validated

Select a group contributing to this activity... Select a value in the Work Breakdown Structure (WBS) of the pl...

LS2 coordination team

User	Role	Actions
JEAN-PHILIPPE TOCK (TE-MSC-CMI)	PLAN-COORDINATOR	Phonebook e-mail
JOSE MIGUEL JIMENEZ (TE)	PLAN-LEADER	Phonebook e-mail
KATY KARINE FORAZ (EN-MEF)	PLAN-COORDINATOR	Phonebook e-mail

My roles for LS2

Role
PLAN-COORDINATOR
PLAN-GROUP-COORD (EN-MEF)

Overview of all roles for LS2

PLAN- Fields (1/4)

What do you intend to do ?

Title

Type
Select activity type...

Responsible group
EN-MEF *Machines and Experimental facilities*

Responsible
Select the Staff or Fellow who is responsible for the activity...

Work Breakdown Structure
Select a value in the Work Breakdown Structure (WBS) of the plan...

Priority
Select the priority...

Facilities
Select one or more facilities...

Location Information
Add information on your location...

Goal
Describe the main goal of this activity...

Impact if not done / postponed
Describe the consequences if this activity is postponed or not completed...

Create

PLAN- Fields (2/4)

When do you intend to do ?

General Schedule Resources Comments Documents Data Quality **1** History Status **Prioritization**

Preparation

Proposed Period 2015 01-01-2015 / 31-12-2015 Accepted Period Select the accepted period...
Duration 12 Weeks

Installation

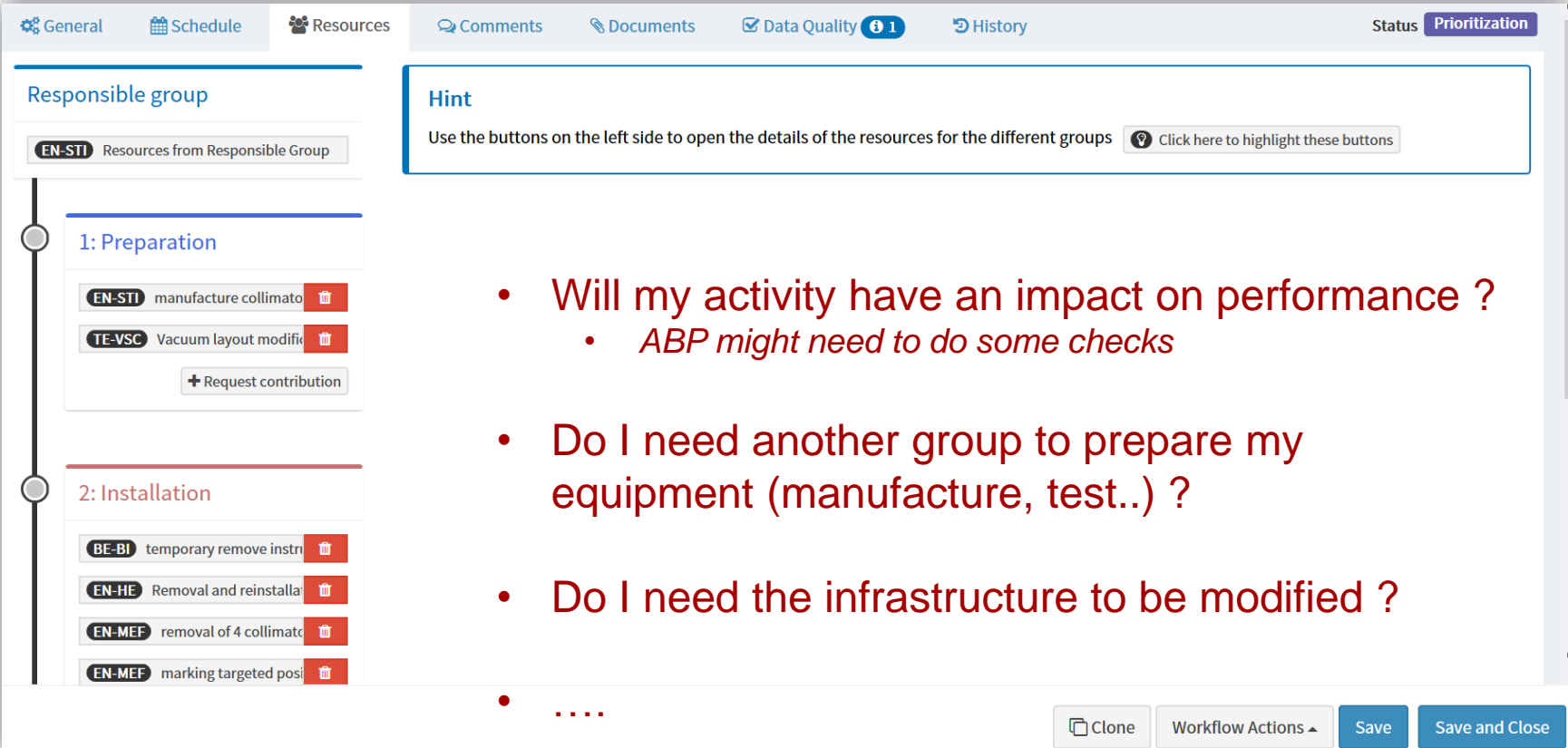
Proposed Period 2015-YETS-2016 16-12-2015 / 15-01-2016 Accepted Period Select the accepted period...
Duration 9 Weeks

Commissioning

Proposed Period 2015-YETS-2016 16-12-2015 / 15-01-2016 Accepted Period Select the accepted period...

PLAN- Fields (3/4)

What do you expect from others ?



The screenshot shows a web application interface with a top navigation bar containing tabs for General, Schedule, Resources, Comments, Documents, Data Quality (with a notification icon and '1'), and History. The 'Status' is set to 'Prioritization'. The main content area is titled 'Responsible group' and contains a list of activities under two sections: '1: Preparation' and '2: Installation'. Each activity is represented by a card with a code, a description, and a trash icon. A '+ Request contribution' button is located below the '1: Preparation' section. A 'Hint' box is present on the right side of the interface, containing the text: 'Use the buttons on the left side to open the details of the resources for the different groups' and a button that says 'Click here to highlight these buttons'. At the bottom right of the interface, there are buttons for 'Clone', 'Workflow Actions', 'Save', and 'Save and Close'.

Responsible group

EN-STI Resources from Responsible Group

1: Preparation

- EN-STI manufacture collimato
- TE-VSC Vacuum layout modifi

+ Request contribution

2: Installation

- BE-BI temporary remove instr
- EN-HE Removal and reinstalla
- EN-MEF removal of 4 collimat
- EN-MEF marking targeted posi

Hint

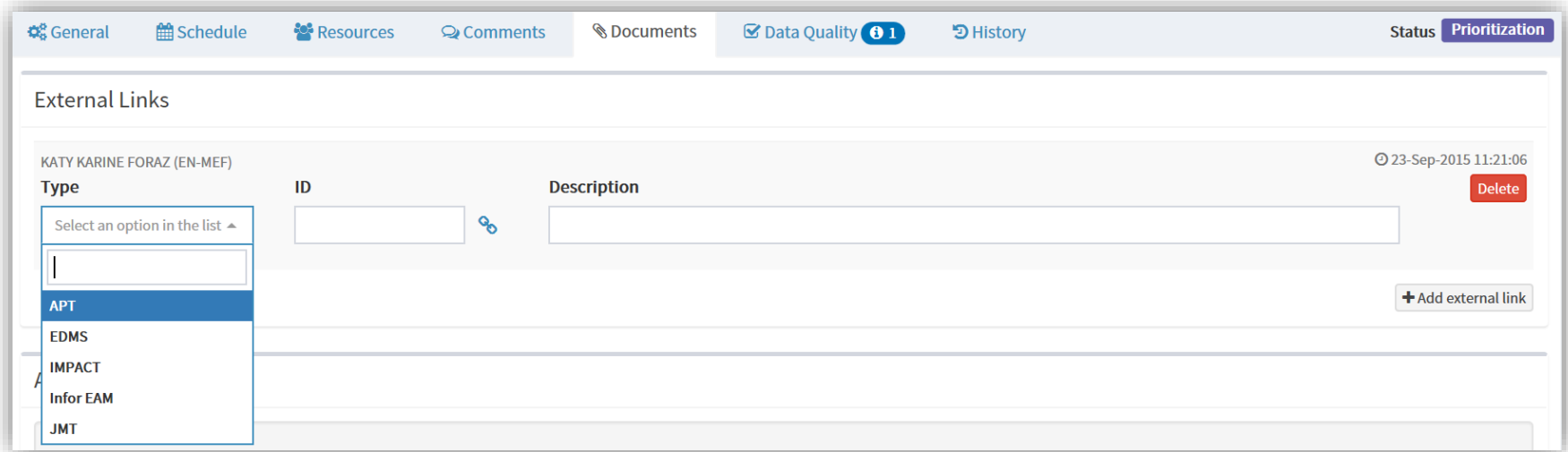
Use the buttons on the left side to open the details of the resources for the different groups [Click here to highlight these buttons](#)

- Will my activity have an impact on performance ?
 - *ABP might need to do some checks*
- Do I need another group to prepare my equipment (manufacture, test..) ?
- Do I need the infrastructure to be modified ?
-

Clone Workflow Actions Save Save and Close

PLAN- Fields (4/4)

Specify what you intend to do ?



The screenshot shows a web interface for managing external links. At the top, there is a navigation bar with tabs: General, Schedule, Resources, Comments, Documents, Data Quality (with a notification icon), and History. On the right, there is a 'Status' section with a 'Prioritization' button. The main content area is titled 'External Links' and contains a form for 'KATY KARINE FORAZ (EN-MEF)'. The form has a 'Type' dropdown menu, an 'ID' input field, and a 'Description' input field. The 'Type' dropdown is open, showing options: APT, EDMS, IMPACT, Infor EAM, and JMT. There is a 'Delete' button on the right and an '+ Add external link' button at the bottom right. The form is dated '23-Sep-2015 11:21:06'.

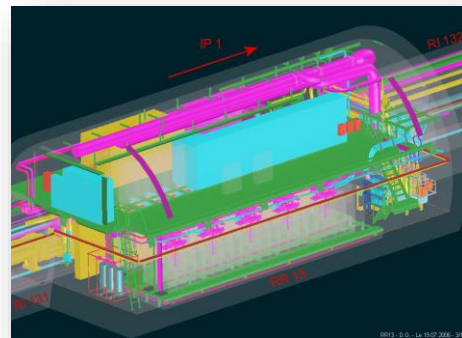
Please insert any documentation which can help the others to understand what you intend to do

Methodology

*“Essential steps during
preparation period”*

Can my equipment be installed ?

- Pre-studies: Integration office designs the 1st draft and determine the volumes for the design offices ►
Space reservation
- Studies: during ICL meetings, these pre-studies are discussed, and evolves w.r.t space & installation constraints & your detailed studies
 - Wednesday mornings (LHC even weeks, injectors odd weeks)



Volume of transport



Volume for the survey

Document



Functional and Engineering Specifications

to make people describe their requirements, their interfaces, their engineering

Engineering Change Request/Order

to ensure the information is up-to-date at a given time, and shared with all those participating to the project to control changes through validation and update impacted specifications

CDR(Conceptual Design Report), TDR (Technical Design Reports), Schematics, 2D-Drawings, 3D-Mockups, Technical Notes, Technical Reports, Technical Datasheets, various lists, BoMs , Procurement Documents (TD,TQ, QC, TS, TF), Scientific Publications, illustrations, sketches, photos, videos

From Space reservation to ECR

Space reservation

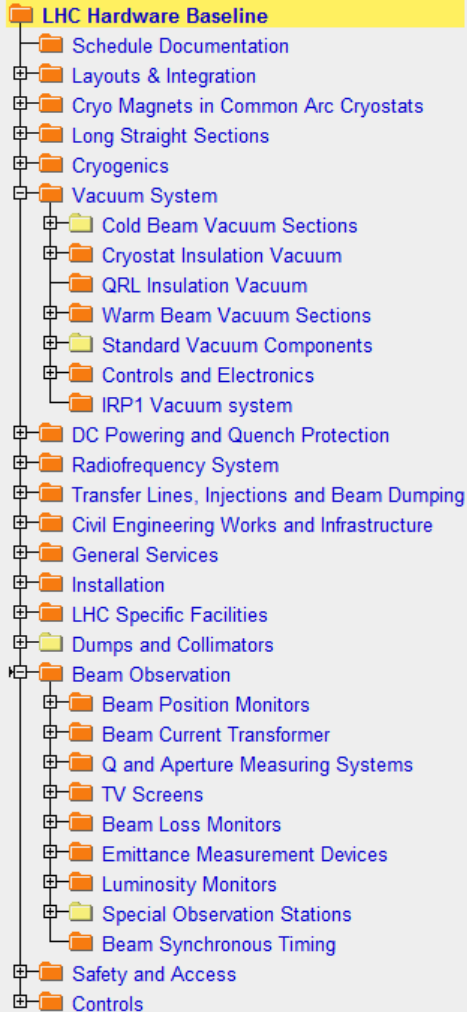
1. Existing situation and introduction
2. Reason for the change
3. Detailed description
4. Impact on other items
5. References



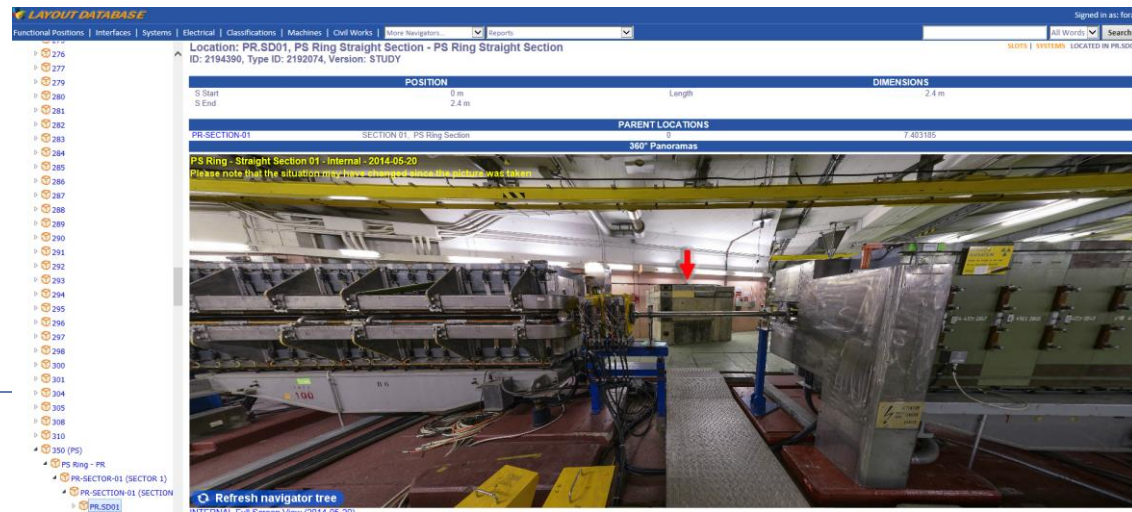
ECR

1. Existing situation and introduction
2. Reason for the change
3. Detailed description
4. Impact on other items
 1. *Impact on items/systems*
 2. *Impact on utilities and services*
5. Impact on cost, schedule and performance
6. Impact on operational safety
 1. *Elément(s) important(s) de sécurité*
 2. *Other operational safety aspects*
7. Worksite safety
 1. *Organization*
 2. *Regulatory tests*
 3. *Particular risks*
8. References

Hardware baseline & layout configuration



- **The hardware baseline** contains all the information needed to re-build the machine, including *Engineering Specifications, Drawing Folders, ECR, Procurement Documents*
- **Layout Database**
 - Stores the sequence (layout) of accelerator and transfer line components.
 - Equipment types and details
 - Functional positions for mechanical and electrical layouts
 - Asset names – functional position is exported to MTF database and associated to an asset. Layout just shows the result.
 - Expert name – optional, alternative functional name



Procurement

Procedures summarized at <https://quality.web.cern.ch/procurement>

Quality
Quality Management Support for the Accelerators & Technology Sector

About Processes Roles Conventions Templates FAQ Contact

Procurement

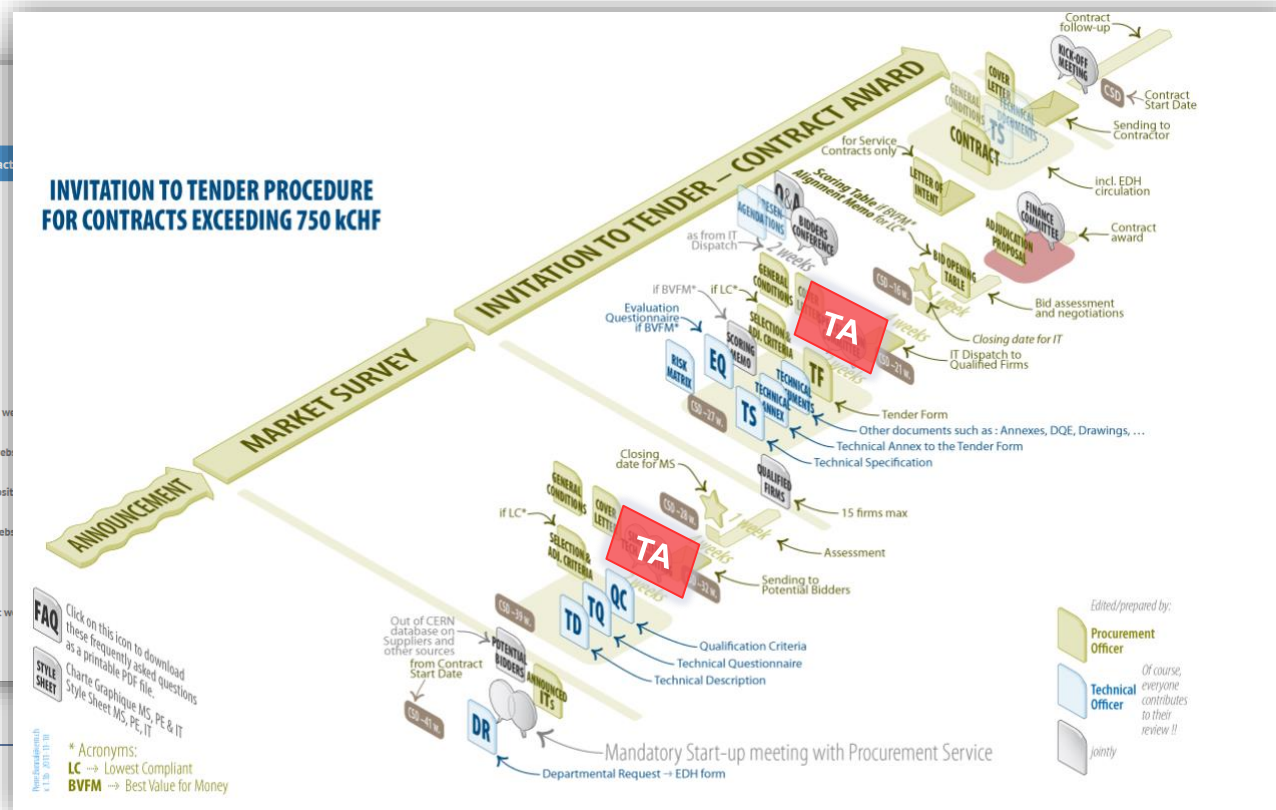
Purchase Orders

- Procedure for requests below 1000 CHF (Quality Support website)
- Procedure for requests between 1000 CHF and 5000 CHF (Quality Support website)
- Procedure for requests between 5000 CHF and 10 kCHF (Quality Support website)
- Procedure for requests between 10 kCHF and 50 kCHF (Quality Support website)
- Procedure for requests between 50 kCHF and 200 kCHF (Quality Support website)

Invitations to Tender

- Procedure for contracts between 200 kCHF and 750 kCHF (Quality Support website)
- Procedure for contracts exceeding 750 kCHF (Quality Support website)

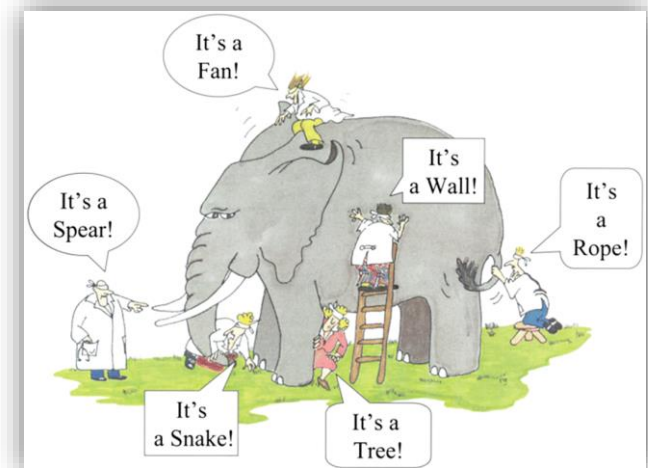
FAQ
Click on this icon to download these frequently asked questions as a printable PDF file.
Charte Graphique MS, PE & IT
Style Sheet MS, PE, IT



Technical auditing - ATS

- Aim

- Reduce the discrepancy along the lifecycle,
 - from the real need to the delivered supply
 - passing by the expressed need, the required supply, the designed supply, the manufactured supply, the installed supply
- **Review** the tendering documents so that **this real need is correctly expressed**, and the way to get it is sufficiently defined
- Ensure that the procurement rules are complied with



*Don't be like those blind (wo)men Think it also as an **elephant!***

Review and review again



Maturation of your project
w.r.t. facilities schedule

Objectivity &
fresh point of view

Better understanding
of issues

Non exhaustive list

- Detailed design review
- Product readiness review
- Technical review
- Interface specifications

Quality

Advices

Risks

Best practices
(or at least good)

Suggestions for equipment/process
improvement

Coordination & Schedule

! Another puzzle to solve !

- Preparation Coordination meetings are held by the different facility's coordinators to plan your activities during YETS and LS2.

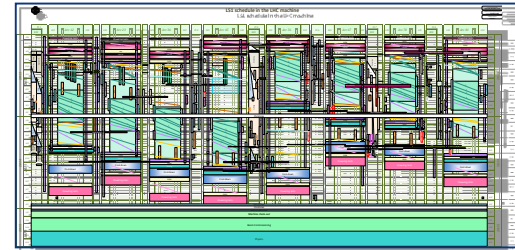
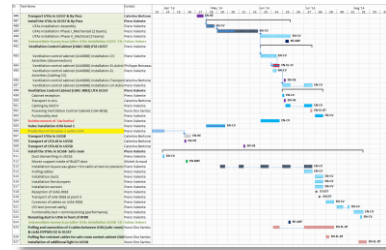


- Groups announce their activities, technical aspects are discussed



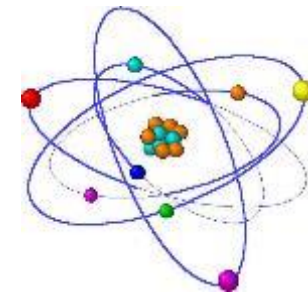
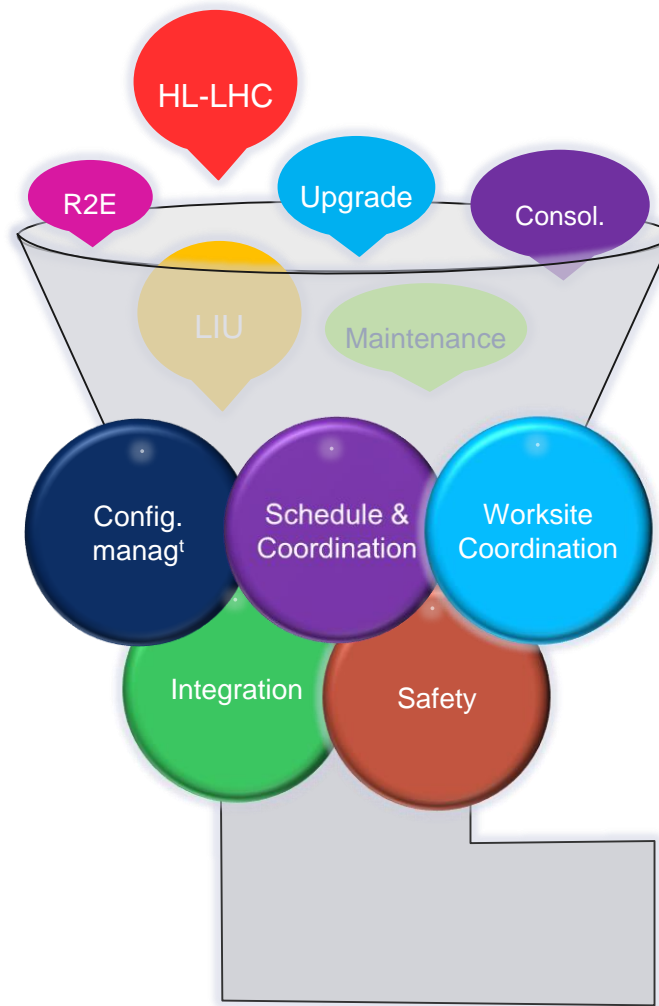
Coordination & schedule

- Facility coordinators gradually will refine the schedule and the organization
 - From big schedule to detailed schedules
 - From a line in a schedule to a Work Package Analysis



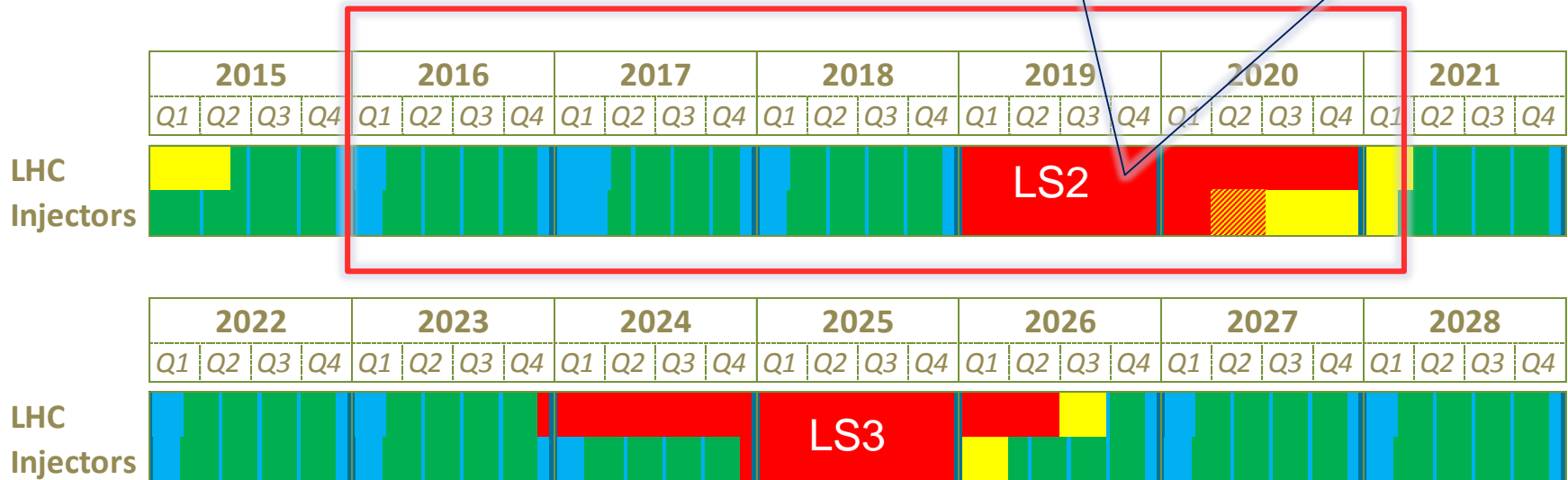
- Schedule of Preparatory works (at CERN premises)
 - We need to understand your needs in order to evaluate resources ► Added value
 - First discussions with BE-BI, do other groups have the same expectation ??

Global picture




Schedule

- Increase intensity/brightness in the injectors to match HL-LHC requirements
- Increase injector reliability and lifetime to cover HL-LHC run (until ~2035) closely related to consolidation program
- Perform major maintenance
- Anticipate HL-LHC work



Schedules

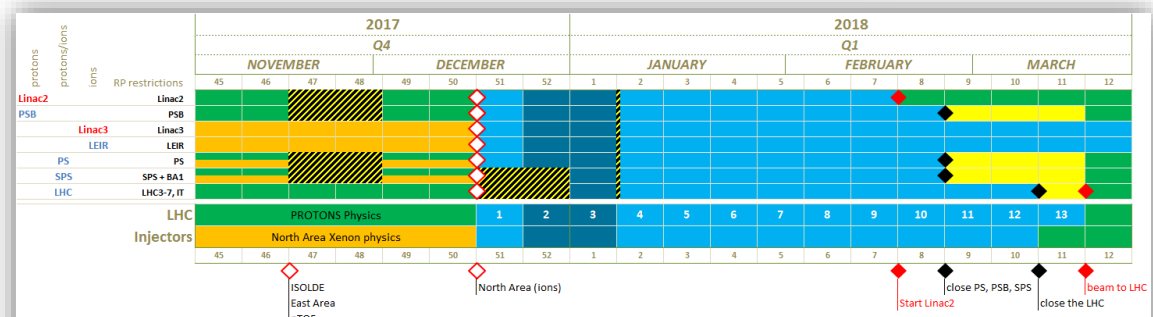
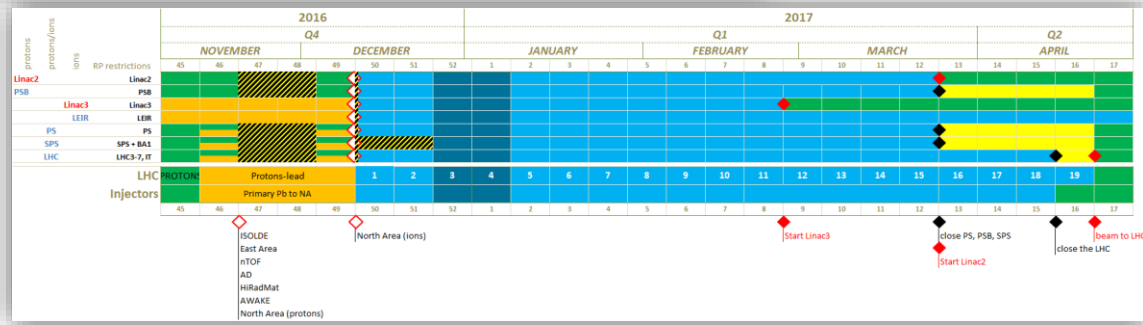
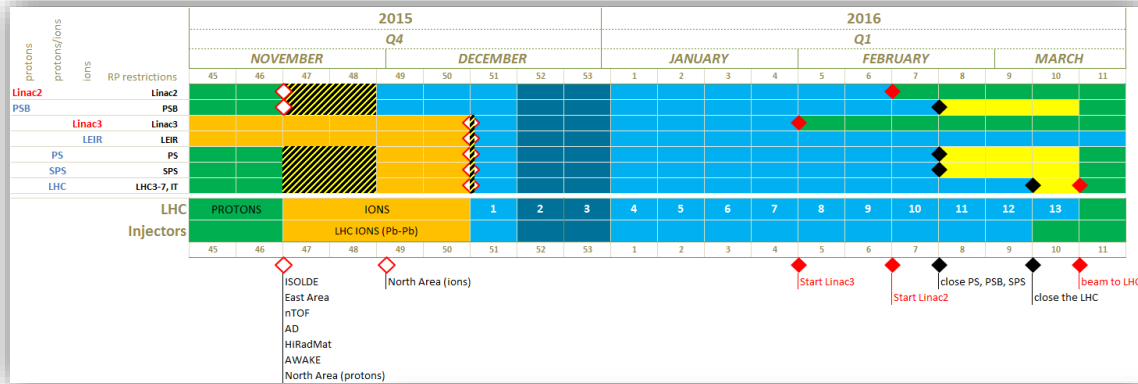
Length of YETS & EYETS

CERN CH-1211 Geneva 23 Switzerland 	EDMS No.	REV.	VALIDITY
	1470895	1.1	DRAFT
REFERENCE			
ATS-PM-MS-0001			
Date:			
MASTER SCHEDULE			
LENGTH OF YETS 2015-2016 / EYETS 2016-2017 / YETS 2017-2018			

This is a proposal for the Year-End Technical Stops and the Extended Year-End Technical Stops before the Long Shutdown 2. It defines the length of the Technical Stops in the PS, PSB, SPS and LHC accelerators. Start and end dates of the YETS and EYETS might evolve in time, but lengths need to remain unchanged.

Length of YETS & EYETS

Under approval

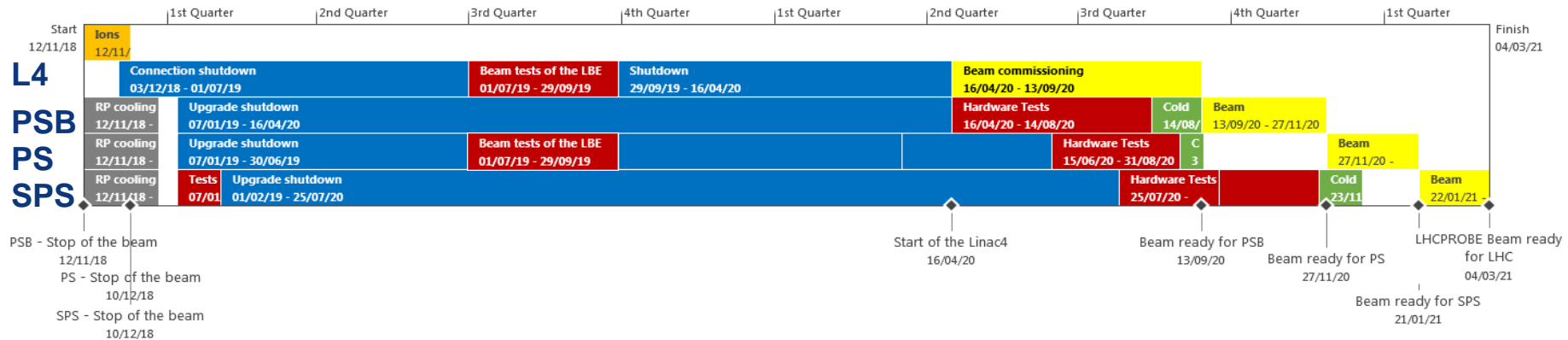


Injectors decabbling project

- To **identify** and **remove obsolete cables** within the injector complex, until end of LS2.
- **First priority: Identification of obsolete cables in the PS Booster**
 - Partial / total removal must be decided by end September 15'
 - Triggered by LIU needs (room in cable containment)
- **Second priority: SPS (BA3 and BA5)**
- **Third priority: Identification of obsolete cables in the PS, TT2, LINACs**

	RUN 2015	YETS 2015-2016	RUN 2016	EYETS 2016-2017	RUN 2017	YETS 2017-2018	RUN 2018	LS2
BOOSTER								
Cable identification	IDENTIFICATION	IDENTIFICATION						
Cable labelling		LABELLING						
Cable disconnection		DISCONNECTION						
Cable removal				REMOVAL		REMOVAL		
SPS								
Cable identification	IDENTIFICATION	IDENTIFICATION						
Cable labelling		LABELLING						
Cable disconnection		DISCONNECTION						
Cable removal				BA5 REMOVAL		BA5 REMOVAL		BA3 REMOVAL
PS, TT2 & Linacs	TO BE DEFINED							

LS2 in injector's complex



- **Linac4 :**

- **7 months** for the connection + **3 months** for beam tests in the LBE line + **6.5 months** of shutdown (=no work) + **5 months** of beam commissioning = **21.5 months**

- **PSB :**

- **1.5 months** of RP cooling + **15.5 months** of work in the machine + **5 months** of hardware tests and cold check out = **22 months**
- **+ 2.5 months** of beam commissioning (LHC PROBE)

- **PS :**

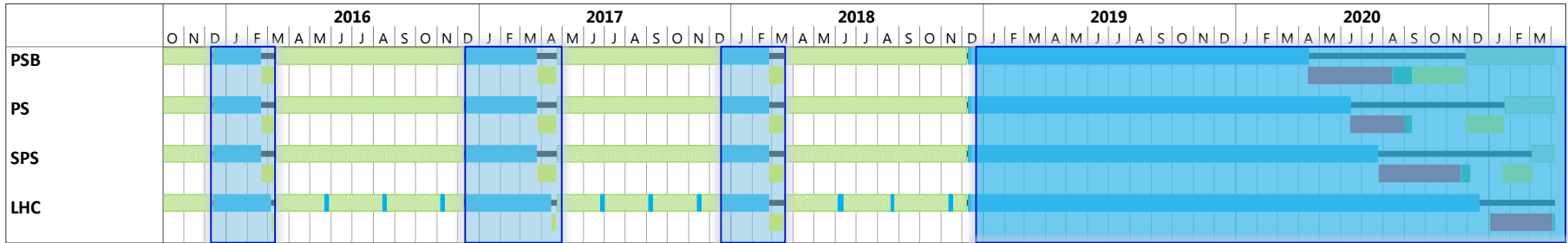
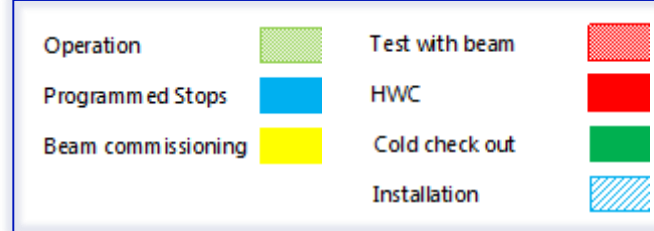
- **1.5 months** of RP cooling + **11.5 months** of work in the machine (+ **3 months** of machine closed because of the Linac4 beam test in the LBE line) + **3 months** of extra-time + **3 months** of hardware tests (11 weeks) and cold check out (2 weeks) = **22 months**
- **+ 1.5 months** (6 weeks) of beam commissioning (LHC PROBE)

- **SPS :**

- **1.5 months** of RP cooling + **4 weeks** of magnets tests + **18 months** of work in the machine + **5 months** of hardware tests (2 months + 2 months of extra-time) and cold check out (4 weeks) = **28.5 months**
- **+ 1.5 months** (6 weeks) of beam commissioning (LHC PROBE)

/\ DSO tests for the SPS = +1 week

Global view (1/3)



Yets15

- PSB & SPS: identification of obsolete cables
- LIU anticipating work
- ATLAS AFP installation
- CMS: cryo consolidation
- Consolidation: NA....
- ..

EYets16

- PSB & SPS: decabling campaign
- LIU anticipating work
- CMS: replacement of Inner tracker
- Consolidation: NA....
- ...

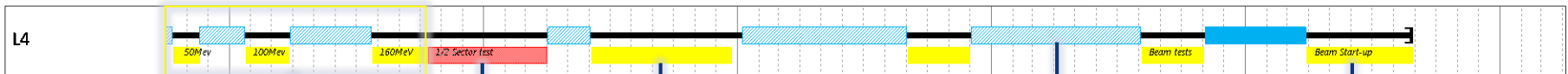
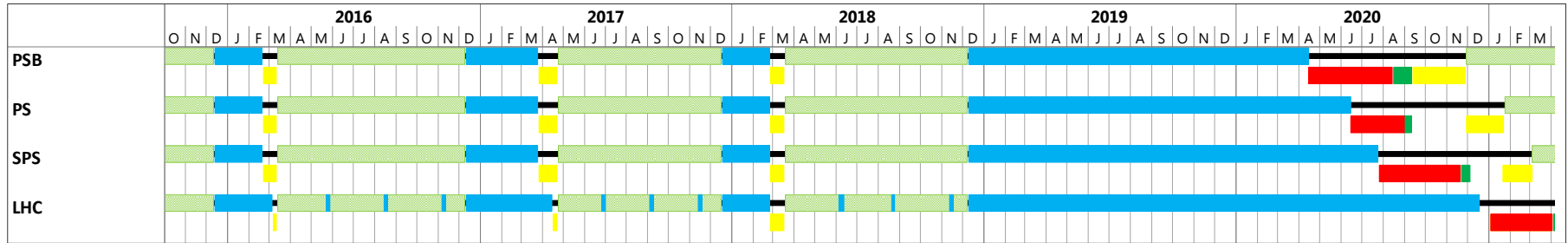
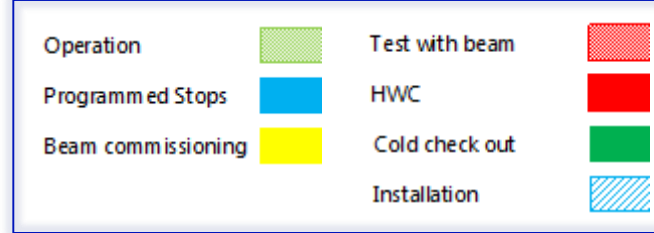
Yets17

- PSB & SPS: decabling campaign
- Consolidation: NA....
- HL-LHC: crab cavities in SPS

LS2

- LIU
- LHC experiments upgrade, especially LHCb & ALICE
- HL-LHC: CE, P4 cryo, collimation...
- Consolidation: EA, accelerator complex...

Global view (2/3)



Beam Commissioning:

- 50MeV: Q4-2015
- 100MeV: Q2-2016
- 160MeV: Q3-2016

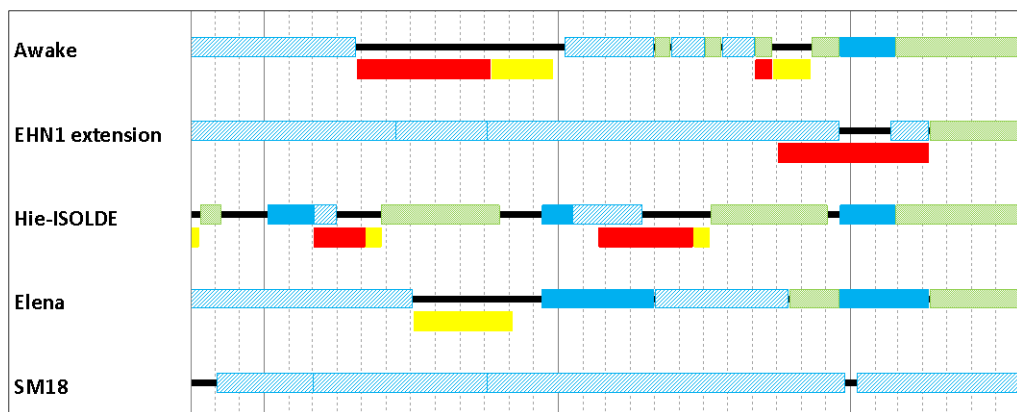
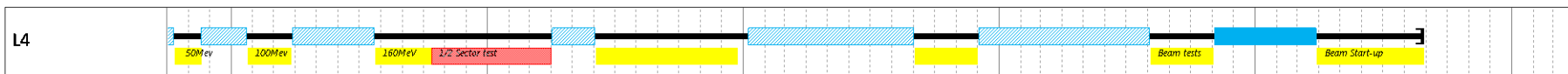
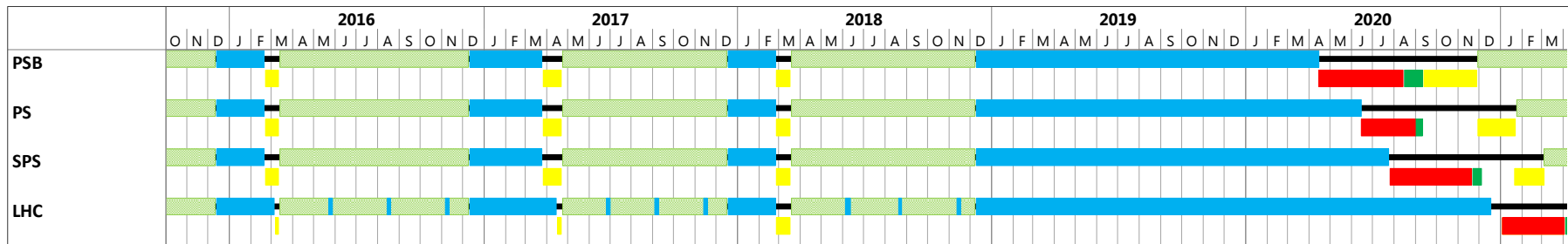
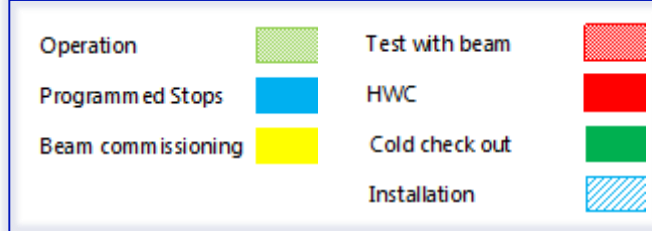
Reliability run

Connexion work

Beam start up

Half sector tests

Global view (3/3)



+ all the other approved projects during this period





LS2 DAYS

29-30 SEPTEMBER 2015

Thank you !