

Last but not least :

LS2 General Safety

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Outline

- Scope
- Who is in charge ?
 - (Safety Organisation @ CERN)
- Plan ahead !
- Preventive Safety actions
 - Conformity / Preventive Workplace Safety
 - ALARA
 - (Safety) training
 - VIC
- Summary

Setting the Scope

Activities independent from the operation (i.e. surface, Linac4...)

2015				2016				2017				2018				2019				2020				2021			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

- Long Shutdown
- Commissioning
- Operation
- Technical Stop

LHC
Injectors



YETS 2015

1

* EYETS 2016

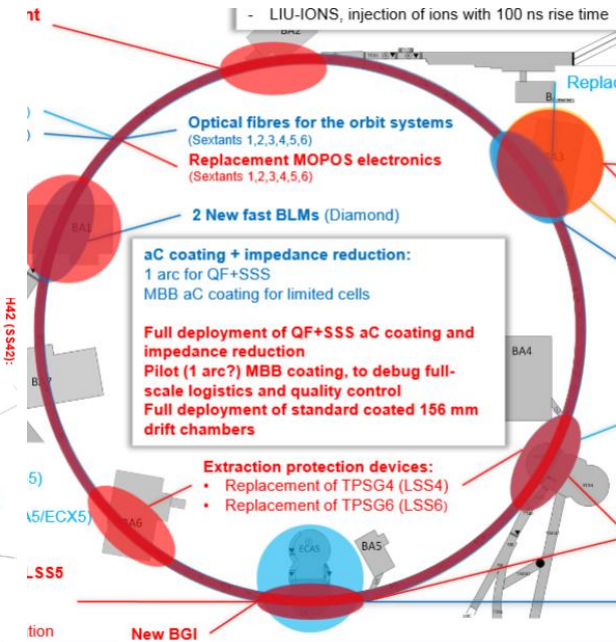
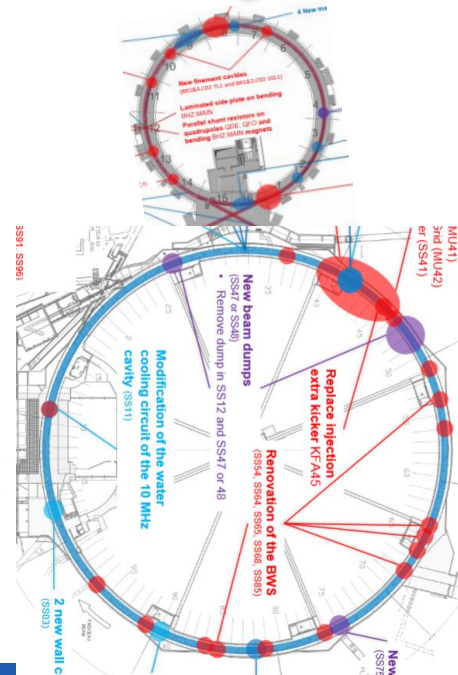
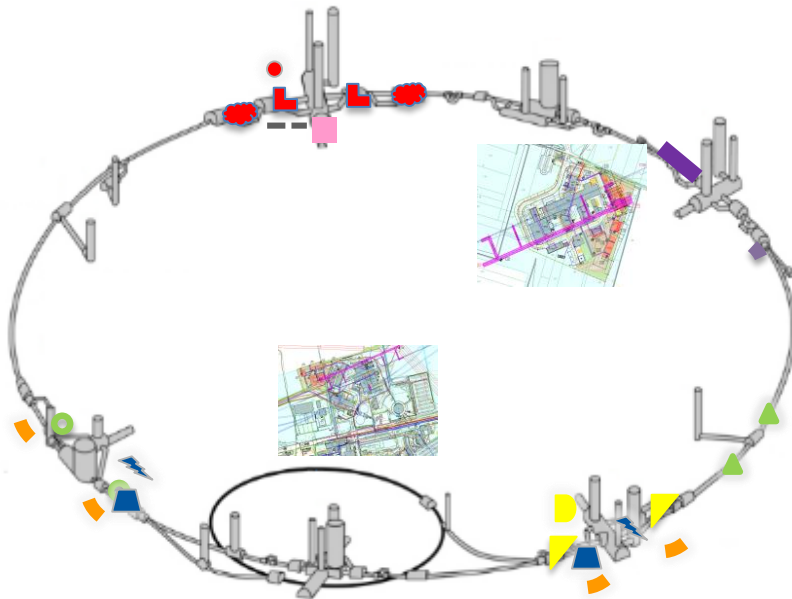
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YETS 2017

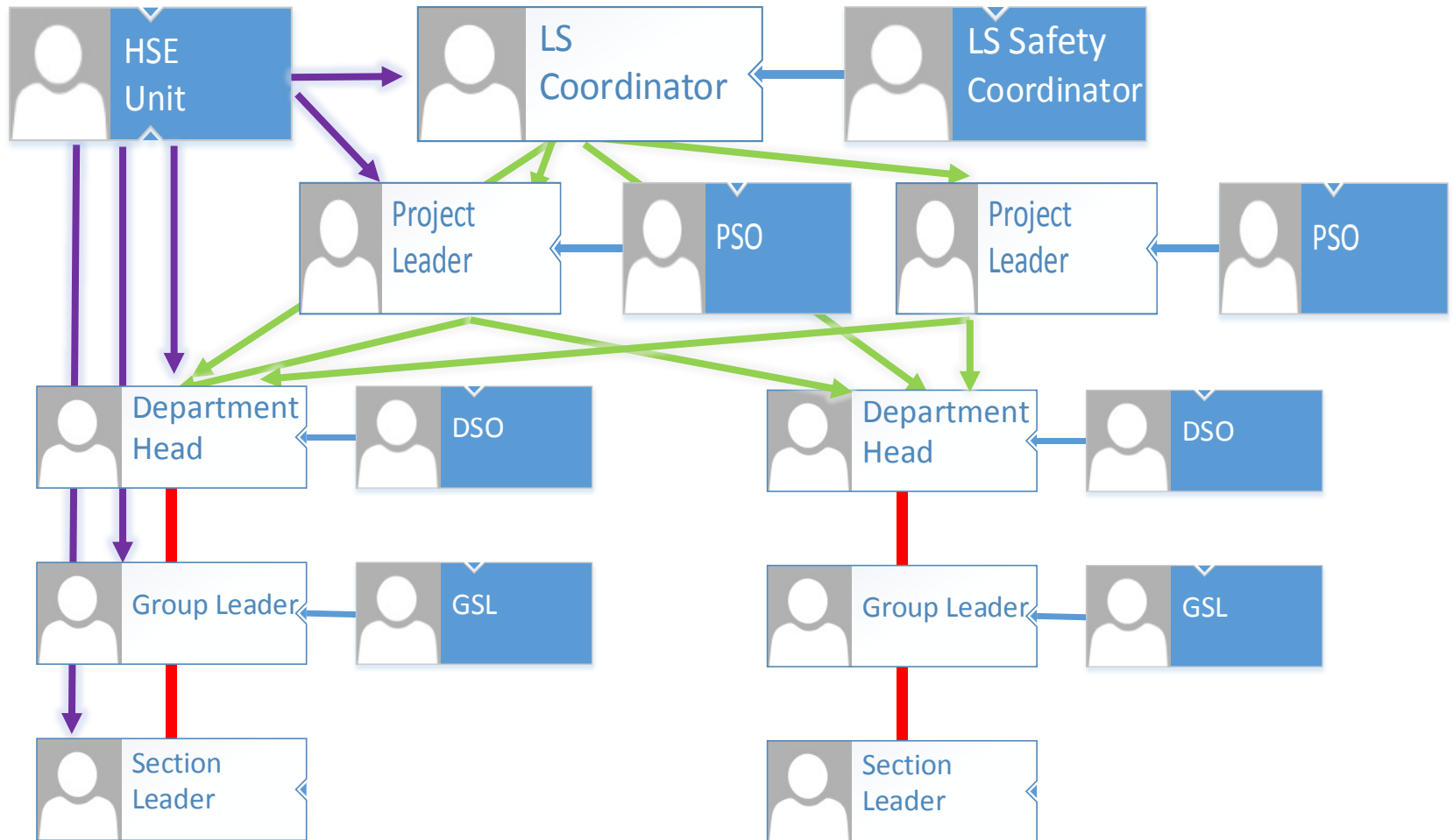
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LS2

4



Who is in charge ?



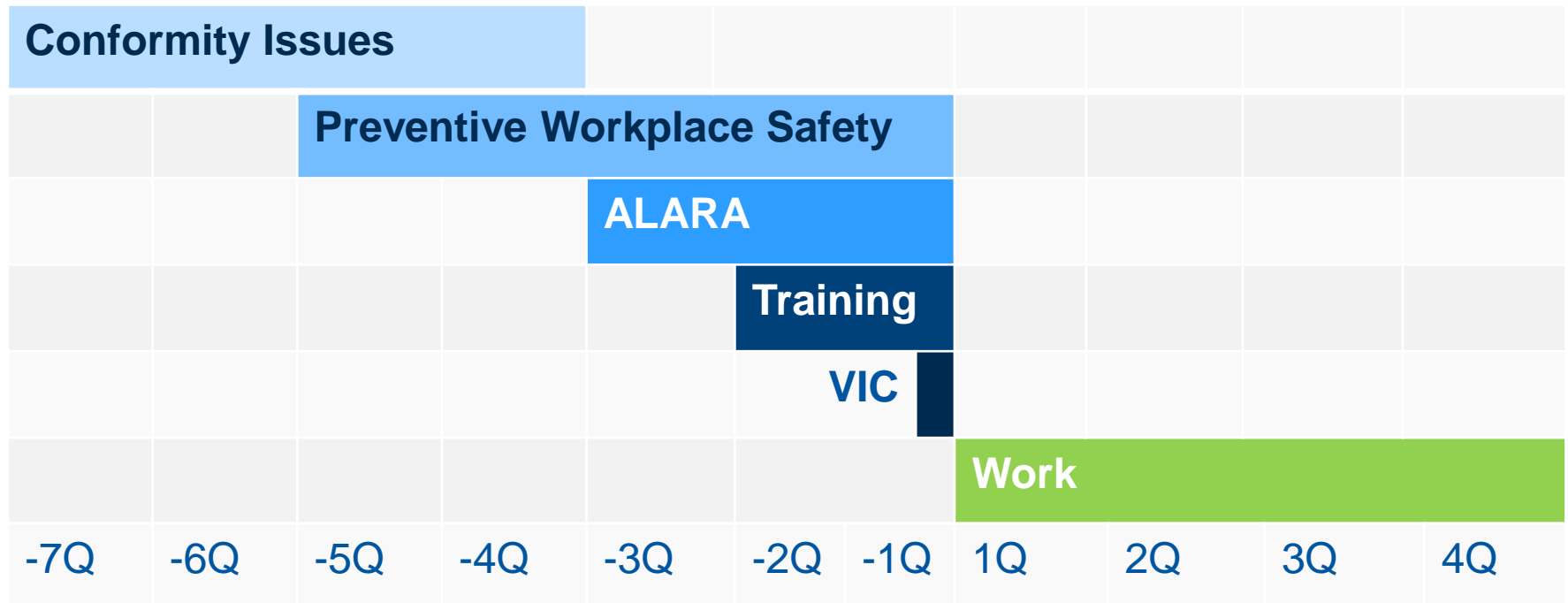
Hierarchical Line

Consulting

Means

Rules / Advice

Plan ahead



Two aspects of Safety

Conformity	Preventive Workplace Safety
Equipment	Process
Standards (ISO, EN, Eur. Dir....)	Safety Rules, best practice
Inspection	Hazard identification, risk assessment
Report on non-conformities	Safety Report, action list
Make conform	Apply rules and best practice
Conformity marking	
User manual	Procedure manual
Training in use of equipment	Training the process
Safety Training	
Personal Protective Equipment	

Conformity Issues

- **Conformity:** an item meets the essential requirements of a given (safety) standard
 - “Equipment X is conform to Standard EN 1234”
- Have all *relevant* items inspected
 - HSE unit inspection service
- Make conform, where necessary
 - Technical measures
 - Technical documentation and manuals
- Train workers



Preventive Workplace Safety

- **Workplace Safety** ascertains that a worker uses a conform equipment in a safe way
- Risk Assessment of *relevant* processes
 - Technical experts
 - Safety (support) officers
 - HSE unit experts
- Put into place recommended actions
- Establish process manuals
- Train workers



What to consider *relevant* ?

- Equipment and tools which are
 - modified by CERN
 - entirely developed by CERN
- Operations and Processes
 - of high complexity
 - involving unique equipment, tools, methods
 - taking place in special environments
- Industry-type work by contractors is covered in PP



ALARA, ~~radiating~~ shining example

- The ALARA dose optimisation process
 - Based on a process description (with timing)
 - Collaboration between executing unit and HSE
 - Optimisation of a measurable objective (dose)
 - Other safety aspects often included: asbestos, physical constraints, ...
- An example of successful safety prevention
- Frequently necessary in LIU projects
- 1st ALARA III committee for EYETS in Nov. 2016

Safety Training

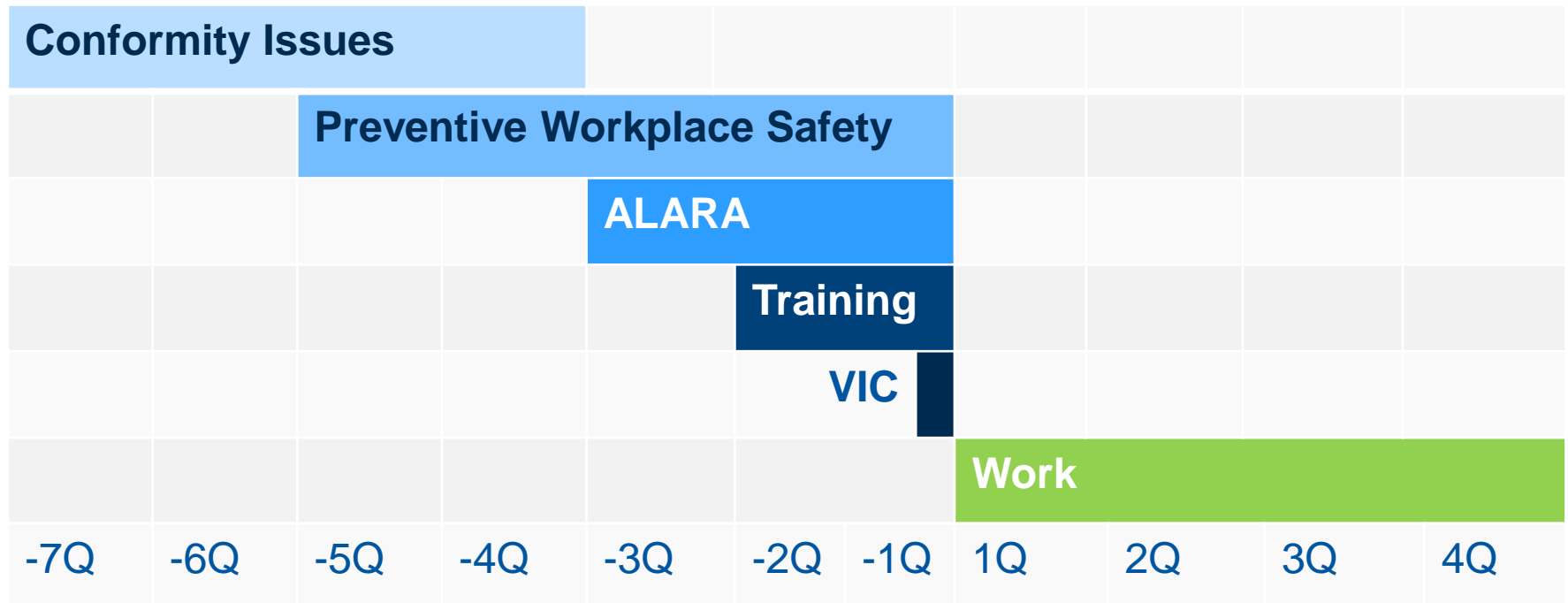
- Formal Training (HSE unit)
 - Capacities limited
 - Plan requirement ahead (personnel scheduling)
 - Language issue unresolved
- On-the-job training (Supervisor's responsibility)
 - For processes and equipment
 - Include in schedules



Visite d'Inspection Commune

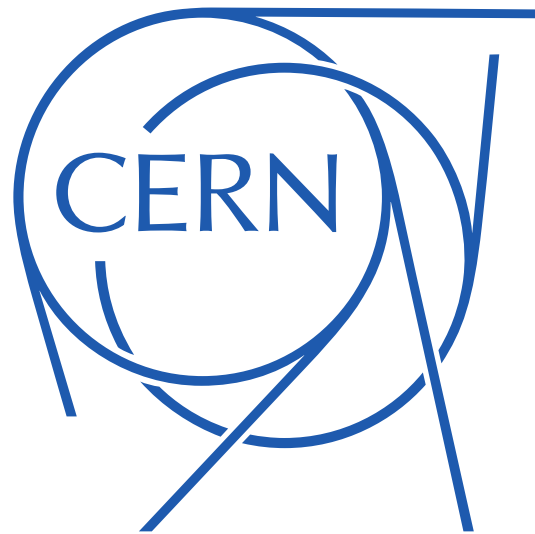
- By professional Safety Coordinator or by the “Works and Services Supervisor”
(GSI-WS-1, “Safety coordination for works and services”)
- Coordination of co-activities
- Takes place shortly before intervention
- Too late to make important changes
- If not successful, delaying the start of works

Plan ahead (reminder)



Summary

- LS2 is the umbrella to
 - Accelerator upgrade projects
 - Consolidation projects
 - Routine maintenance
- A Safety Framework is developed, based on
 - Conformity & Preventive Workplace Safety
 - Adequate (Safety) Training
- The (well-known) hierarchical line of Safety responsibility remains in place, with support from Projects, Coordination and HSE unit



Thank you for your attention.

Have a safe way home.

Who is in charge ?

