ACCOR: What will change for operation and equipment groups?

A. Radeva, on behalf of the ACCOR team, BE/CO
IEFC, Controls session, 21.03.2011

Outline

- **ACCOR project state**
- **Impact of the new LHC schedule and LIU**
  - ACCOR's and equipment groups' concerns
  - ACCOR's proposal
- **ACCOR renovation process and its impact**
  - Formal approval process
  - Objectives
- **Impact of ACCOR on Operation**
  - Involvement in the renovation process
  - Post renovation impact, front-end diagnostic
- **Conclusions**

Criticality According to ACCOR

**O
B
S
O
L
E
S
C
E
N
C
E**

**F
U
L
L**

**V
E
R
T
I
C
A
L**

XMotif applications

GM front-end

Lynx OS

Obsolete hardware

VME RIO, CAMAC

Long-distance cables

ACCOR has very high priority for CO
Injectors control system end of life (20 years old): impossible to add any new functionality

Limiting: for all applications (20 years) (e.g. InCA), no upgrade possible

Critical: blocking performance
Limiting: no support, no evolution

Critical: procurement impossible
no more single hybrid transceiver (30-years)

TE/EPC:
not blocking for PSB

Critical: procurement impossible   60 RIO spares (640 FECs)
Critical: CPU blocking performance (7-13 years)

Critical: inventory required (EN/EL)
(very old cables: 30 years)

Project Status

ACCOR

BE/CO components

| operational | **CO applications** |

| 90% ready FESA 2.10 | **CO FESA classes** |

FESA 3

already available
release 09/2011

| operational | **Linux** |

| 80% operational | **Drivers** |

New FMCs

development: 06/2011
deployment: 01/2012

| operational | **MEN A20, PICMG1.3** |

ready
for deployment

Some Equipment Groups

Specific applications

Specific FESA classes
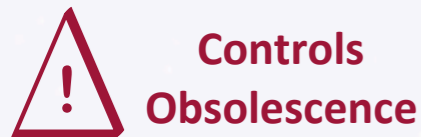
↑ no front-end renovation without low-level one

Low-level control

1. not planned yet for 2012 (no P+M)
2. busy with LHC for the last 2 years
3. 30-40-years old
4. ACCOR is not a priority

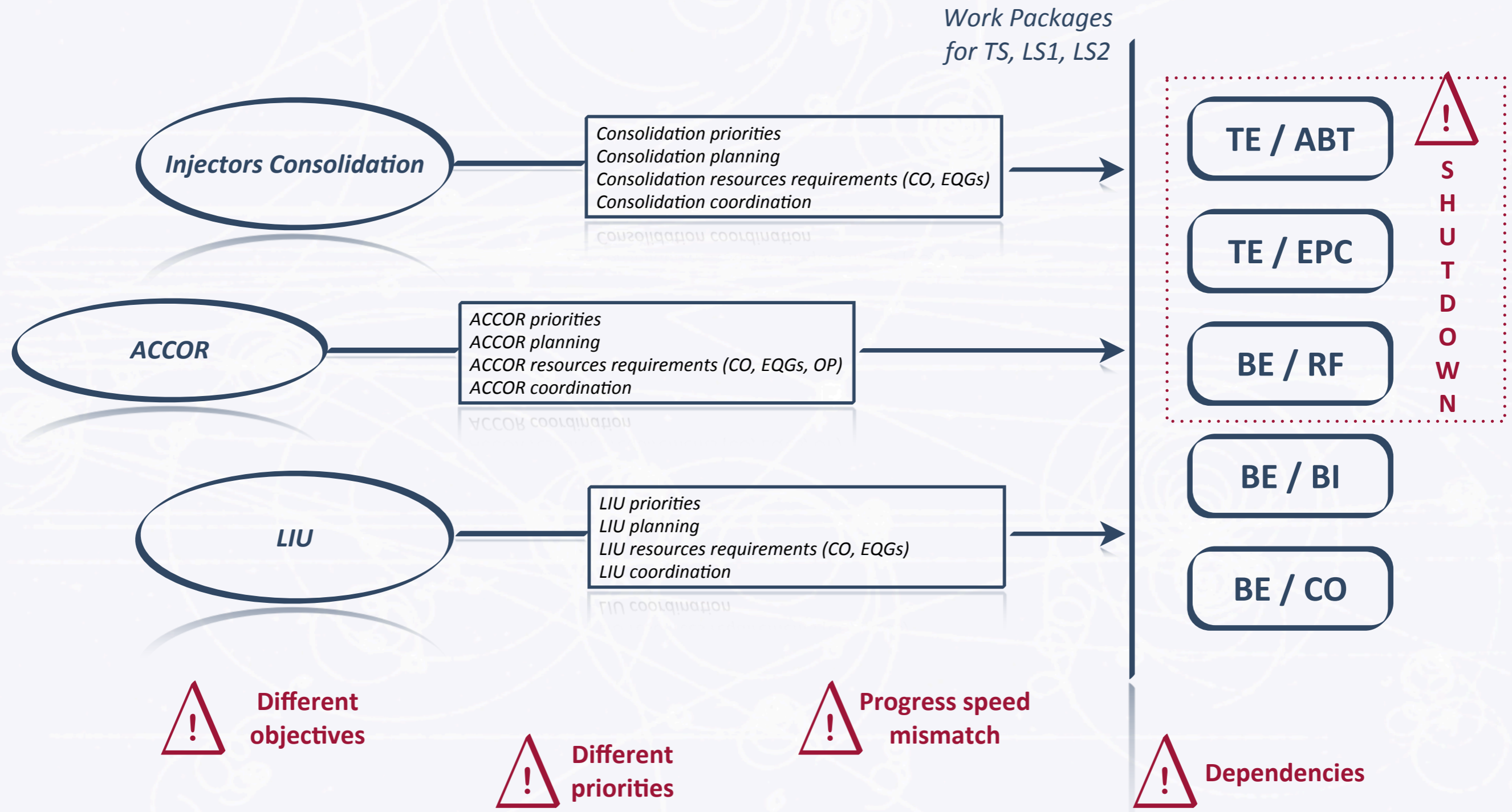⚠ **ACCOR cannot finish as planned in 2012**

Impact of New LHC Schedule

- **Chamonix 2011 Outcome - LHC schedule**

⚠ **Controls Obsolescence**

| TS | LS1 | | LS2 |

| 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |

⚠ **too short for EQGs**

⚠ **LS1 duration not guaranteed not sufficient for some EQGs**
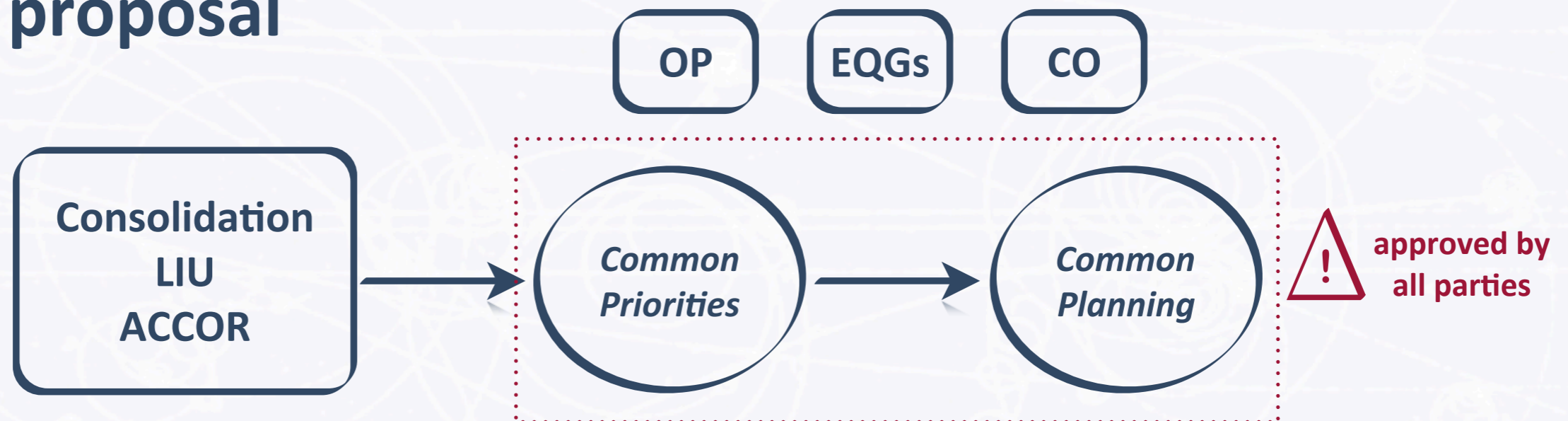
⚠? **ACCOR End**

- **Consequences**
  - Limited renovation can be done in 2012 (only non-critical)
  - Gives 1 more year to some EQGs to advance with the low-level control and front-end renovation

ACCOR New Context

Work Packages for TS, LS1, LS2

Injectors Consolidation

Consolidation priorities
Consolidation planning
Consolidation resources requirements (CO, EQGs)
Consolidation coordination

ACCOR

ACCOR priorities
ACCOR planning
ACCOR resources requirements (CO, EQGs, OP)
ACCOR coordination

LIU

LIU priorities
LIU planning
LIU resources requirements (CO, EQGs)
LIU coordination

TE / ABT

TE / EPC

BE / RF

BE / BI

BE / CO

S H U T D O W N

⚠ **Different objectives**

⚠ **Different priorities**

⚠ **Progress speed mismatch**

⚠ **Dependencies**

ACCOR Proposal

- **ACCOR and equipment groups concerns**
  - decoupling of ACCOR, Consolidation and LIU projects
  - differing priorities of CO and EQGs
  - no visibility of ACCOR's P+M in the EQGs
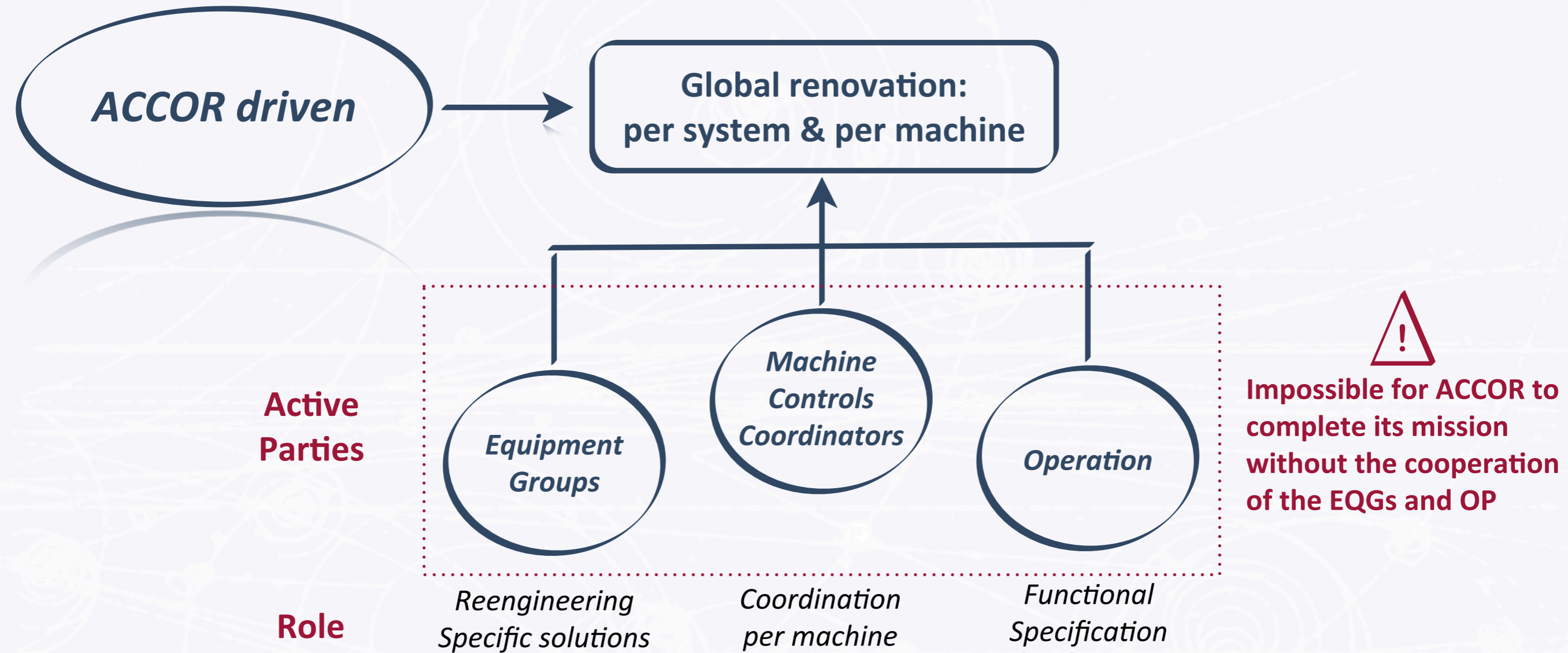 - LS1 might not be enough for some EQGs to finish renovating

- **ACCOR proposal**

OP   EQGs   CO

Consolidation
LIU
ACCOR

Common Priorities → *Common Planning*

⚠ **approved by all parties**

Actions:
1. Combined coordination of priorities and planning (above the level of CO)
2. Visibility of P+M for ACCOR in EQGs

LHC proton chain
Systems critical to maintain or blocking performance for operation

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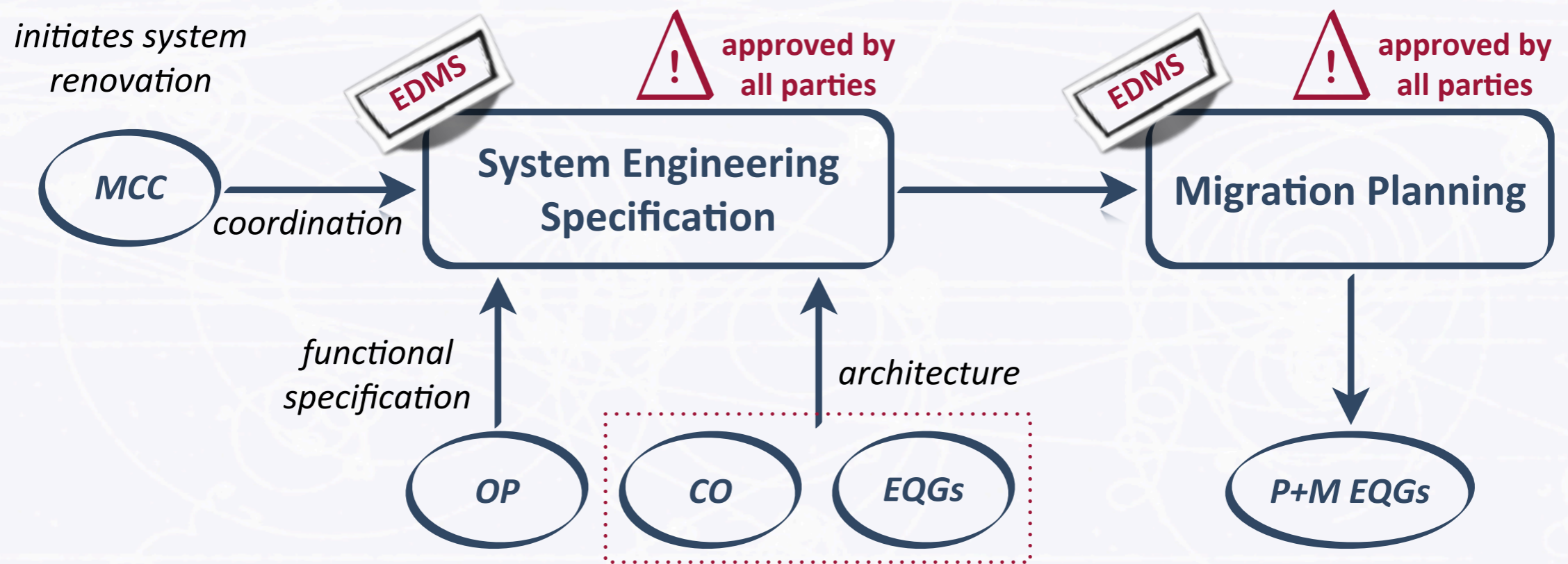 – Post renovation impact, front-end diagnostic
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ACCOR Strategy

ACCOR driven → **Global renovation: per system & per machine**

Active Parties

- Equipment Groups
- Machine Controls Coordinators
- Operation

⚠️ **Impossible for ACCOR to complete its mission without the cooperation of the EQGs and OP**

Role

Reengineering Specific solutions | Coordination per machine | Functional Specification

- **LIU is a new major factor for ACCOR**
  - ACCOR adapting to LIU and EQGs priorities
  - MCC: from global renovation mode to one adapted to the EQGs

Pragmatic Formalism

- **Necessity of formal approval by experience**
  - e.g. Linac 2 Software Interlock System Watchdog
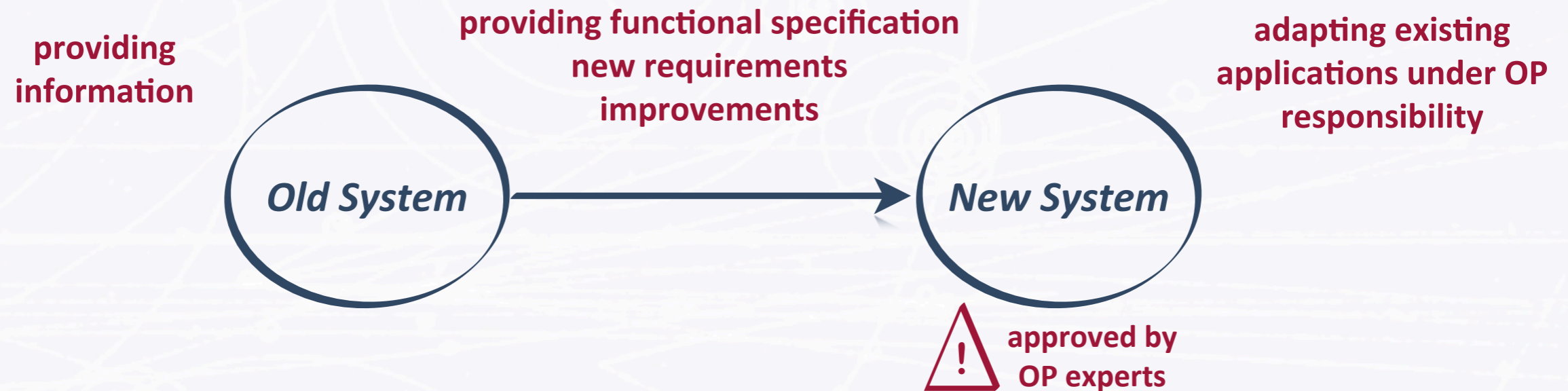 - e.g. CTF BPM (performance blocking operation)

R. Steerenberg's talk

initiates system renovation

MCC → *coordination* → EDMS → **System Engineering Specification** → **Migration Planning**

⚠ **approved by all parties**

⚠ **approved by all parties**

EDMS

functional specification

architecture

OP **CO** **EQGs**

P+M EQGs

Objectives

- **Providing clear renovation planning per machine**
  - matching priorities of all active parties
  - allowing resource allocation
- **Improving the collaboration among the active parties**
- **Documenting the Injectors controls while renovating**
  - System Engineering Specification persisting beyond ACCOR
- **Giving clear picture what might be the impact of the delayed renovation on the delivery of beam to LHC**
- **Redefining the timeline of the project ACCOR**

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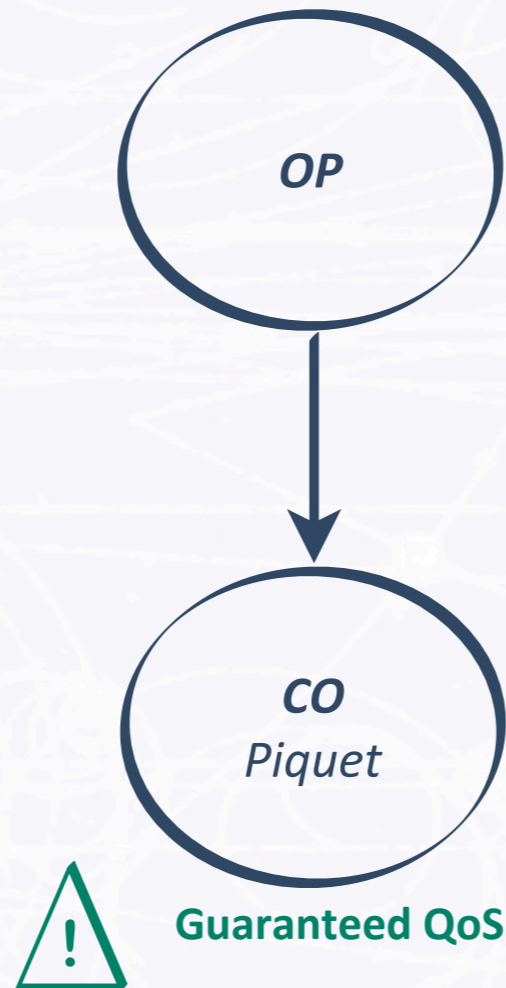# Impact on Operation

- **OP experts involvement during renovation**

providing
information

providing functional specification
new requirements
improvements

adapting existing
applications under OP
responsibility

Old System → New System

⚠ approved by
OP experts

- **Post renovation impact**
  - validating the new solutions in operation
  - getting used to the new instruments (hardware, front-end and application software)
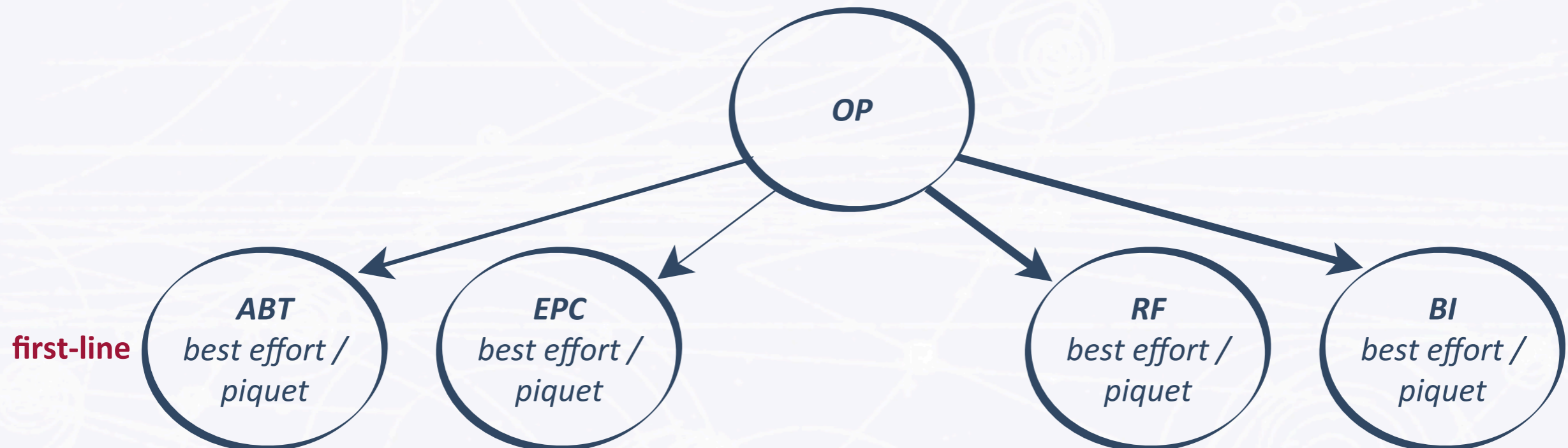 - adapting to the new cooperative front-end responsibility model in place (SPS & LHC-like)

Front-end Responsibility Model

- **Cooperative front-end responsibility model: strategy approved by CO3 in 2008**

OP

CO
Piquet

! **Guaranteed QoS**

Front-end Responsibility Model

- **Cooperative front-end responsibility model: strategy approved by CO3 in 2008**

first-line

OP

ABT
best effort / piquet

EPC
best effort / piquet

RF
best effort / piquet

BI
best effort / piquet

Front-end Responsibility Model

- **Cooperative front-end responsibility model: strategy approved by CO3 in 2008**
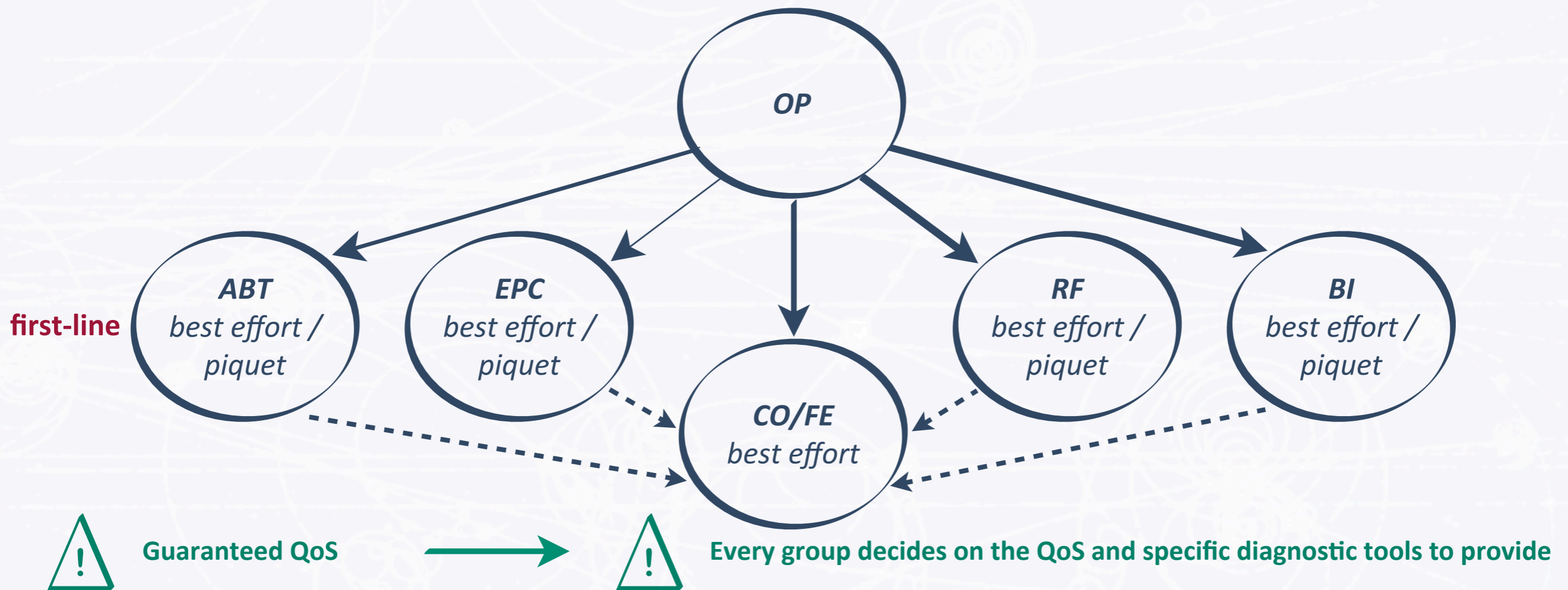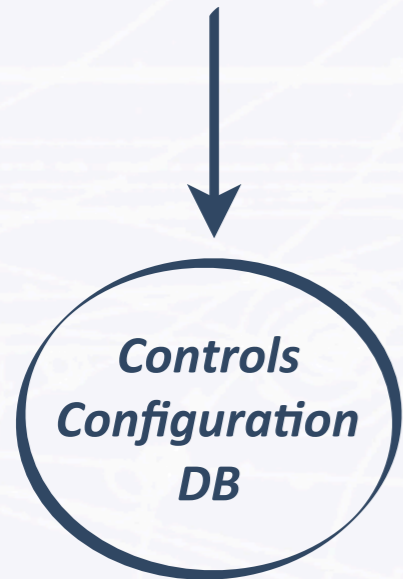

- **OP concerns about the shared support - understandable**

CO Front-end Diagnostic

**CCDB Extensions
under discussion:**
1. *Group responsible*
2. *Expert list*
3. *Exploitation info*
3. *Renovation flag*

⚠ **Discussion involving
all parties**

*Controls
Configuration
DB*

*e.g. DIAMON
LASER*

cfv-2013-a12gts1 (12GHZ TEST STAND FRONT-END)

General | Details | Host | CMW

Ping | Reboot | SSH | Menu

Responsible: *GROUP, TEAM, EXPERT?*　　Last update: 16:52:31 21/03/11

Exploitation info: BE/RF (first-line), CO Piquet (front-end), OASIS support (expert)

Missing jobs from transfer.ref : At least [TriggerSignal_M] from server.init is missing

⚠ **ACCOR's Goal**
CCDB up-to-date as a
source of exploitation info

- **New Exploitation Project is being launched in CO**

Conclusion

- **Reassessing the criticality of the Injectors controls in EQGs**
  - Controls renovation work (P+M) should be planned and be visible in APT by EQGs

- **ACCOR Adaptation to the LHC schedule and LIU**
  - Combined coordination of priorities and planning between LIU, EQGs and CO

- **Involvement of EQGs and OP in the approval process**
  - Every system renovation will be documented and approved by all parties using EDMS approval procedure

- **New cooperative front-end responsibility model**
  - EQGs become the first line of support for their front-ends
  - CO will be called by the EQG's first line support if the problem is CO related