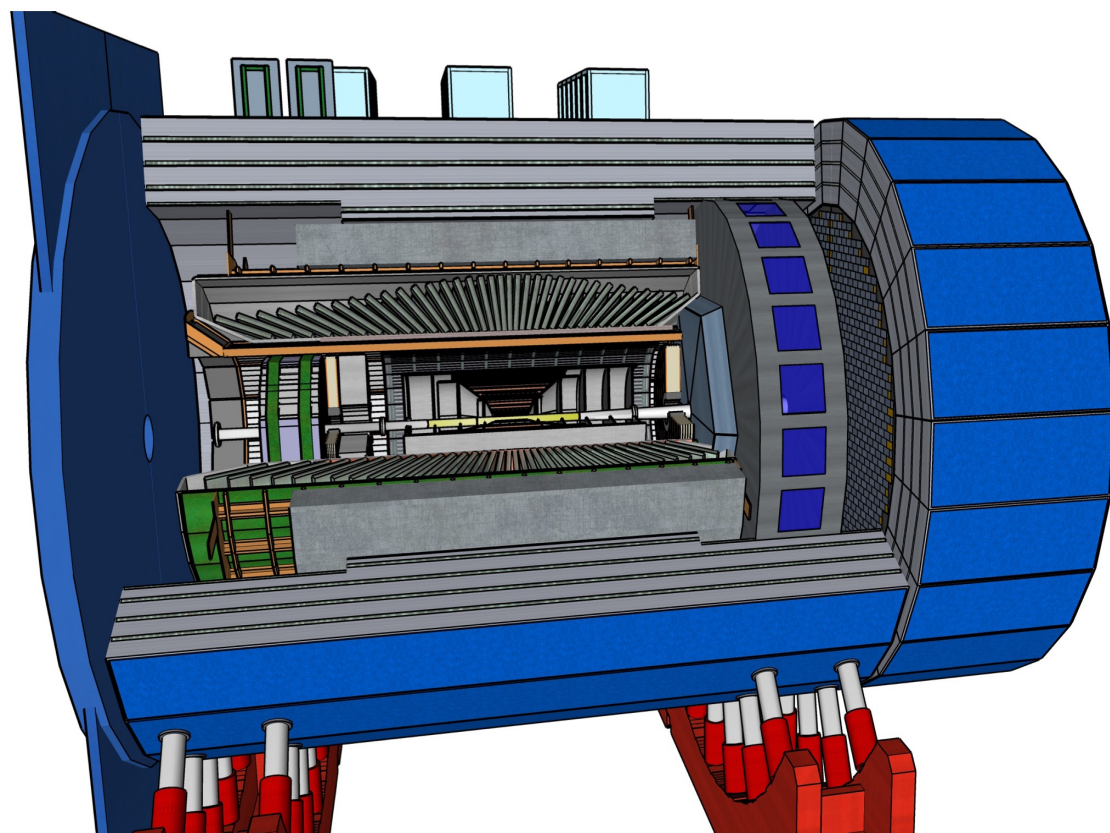




# *EIC Comprehensive Chromodynamics Experiment*



Introduction to the ECCE Project  
& ECCE Collaboration Overview

Or Hen



# Today's Schedule

Introduction	(O. Hen, '5)
Collaboration	(O. Hen, '15)
Project: Cost, schedule, and risk	(J. Lajoie, '20)
Detector: Risk, R&D, Upgrades	(T. Horn, '15)
Summary	(T. Horn, '5)

# ECCE Project

Worked with ORNL project professionals to introduce principles of professional project management early on and to help ensure ECCE can produce an on-time on-budget project detector:

- Detailed cost and schedule plan implemented in Primavera P6,
- Detailed risk log developed; Mitigation strategies formulated:
  - Minimize number of technologies used by the detector,
  - Reuse existing equipment where appropriate,
  - Strong coupling to R&D plan and ongoing large-scale projects,
  - Study feasibility of using alternative technologies where possible,
  - Carry forward replacement magnet design.



See Talk  
by J. Lajoie

# ECCE Project

- ➔ ECCE project plan is well thought out and reviewed by experienced professionals;
- ➔ ECCE cost estimate is highly reliable;
- ➔ ECCE will be ready for early CD4A and within the costed budget.



See Talk  
by J. Lajoie

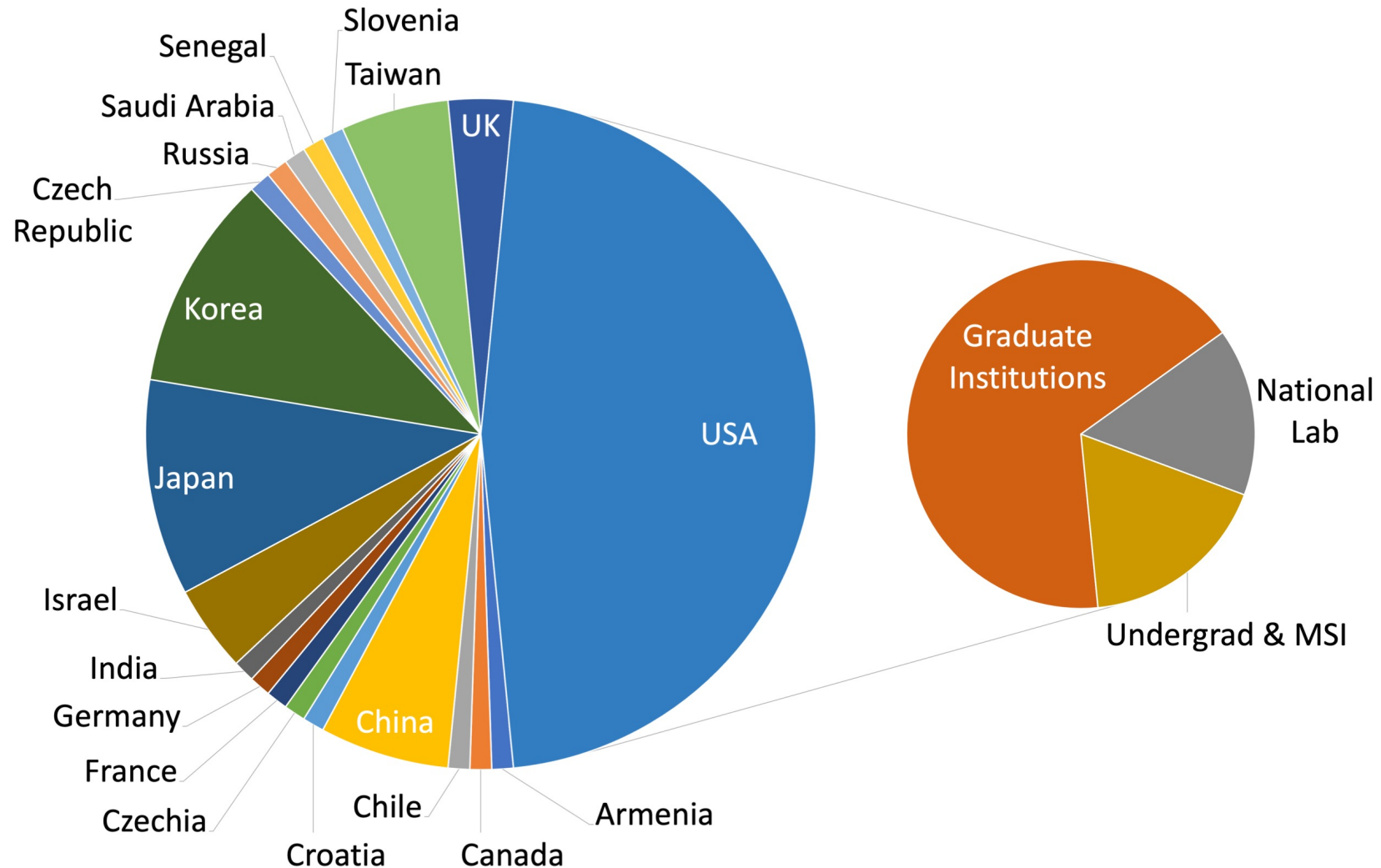
# ECCE Consortium

## 96 institutions from:

- All RHIC experiments,
- All JLab Halls,
- All LHC experiments.

## Experience with relevant projects, most recently:

- ALICE Tracking, Calorimetry, Readout,
- sPHENIX tracking, calorimetry, readout, Computing, Infrastructure,
- GlueX DIRC, Computing
- Hall C NPS,
- SBS GEM Trackers,
- CMS far-forward detectors, Computing, timing upgrade,
- ....



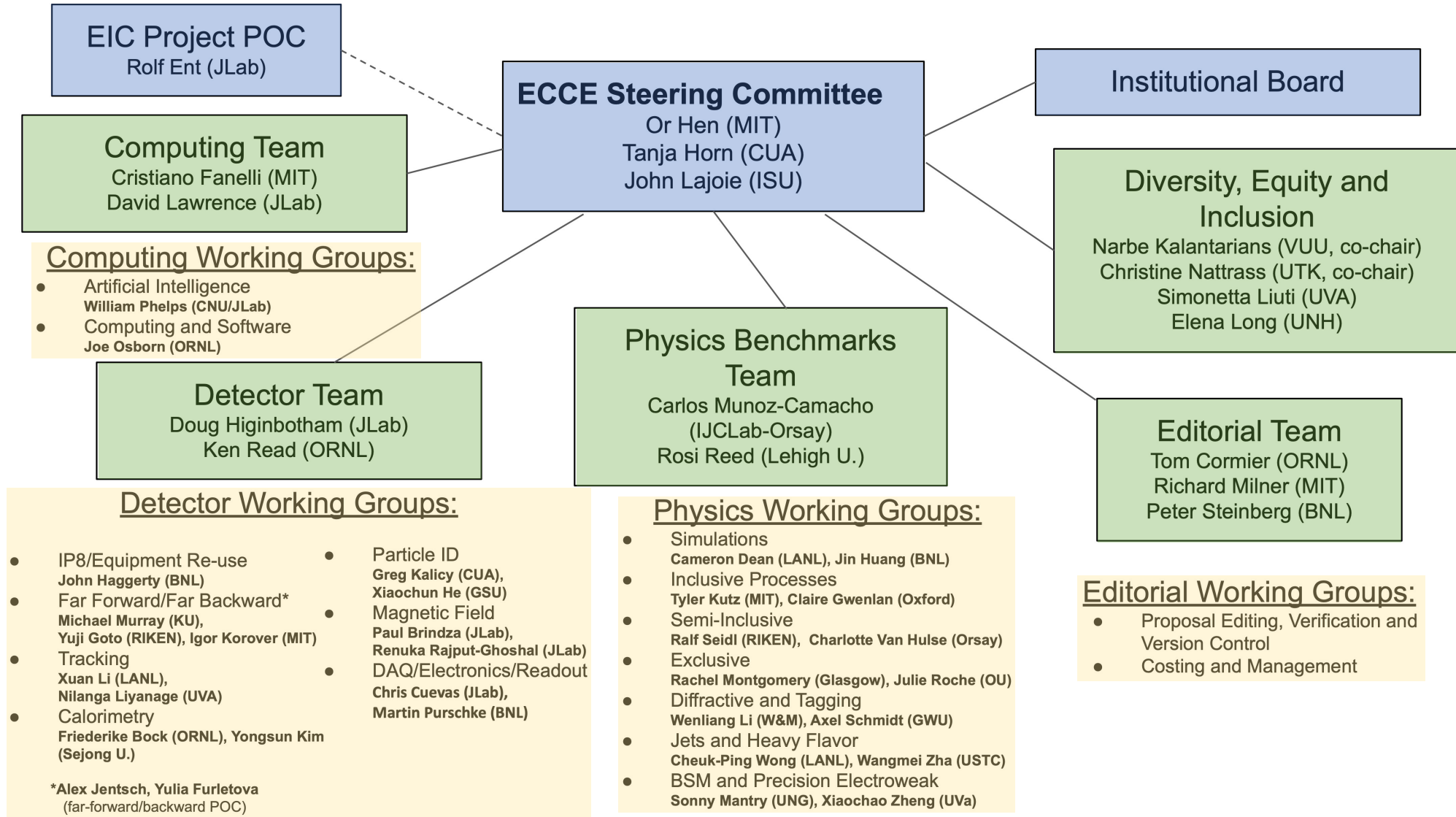


For the proposal stage, ECCE operated as a consortium.

This allowed:

- Focus on designing the detector,
- Building DEI and proper professional conduct into our culture,
- Flexibility for post-proposal stage where: (A) new groups plan to join the EIC effort and (B) active groups will move between efforts.

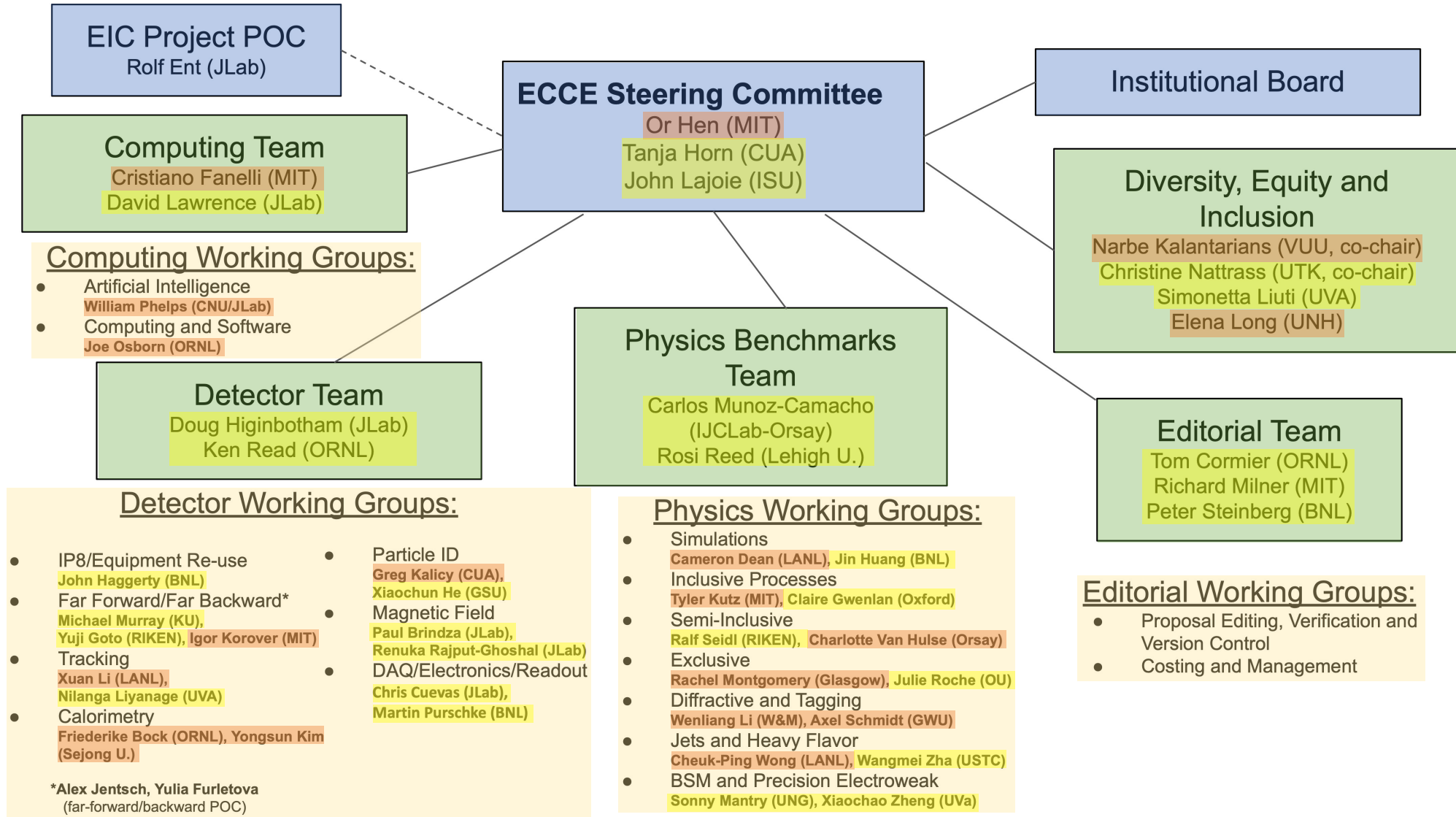
# ECCE Consortium





# ECCE Consortium

Junior  
Senior





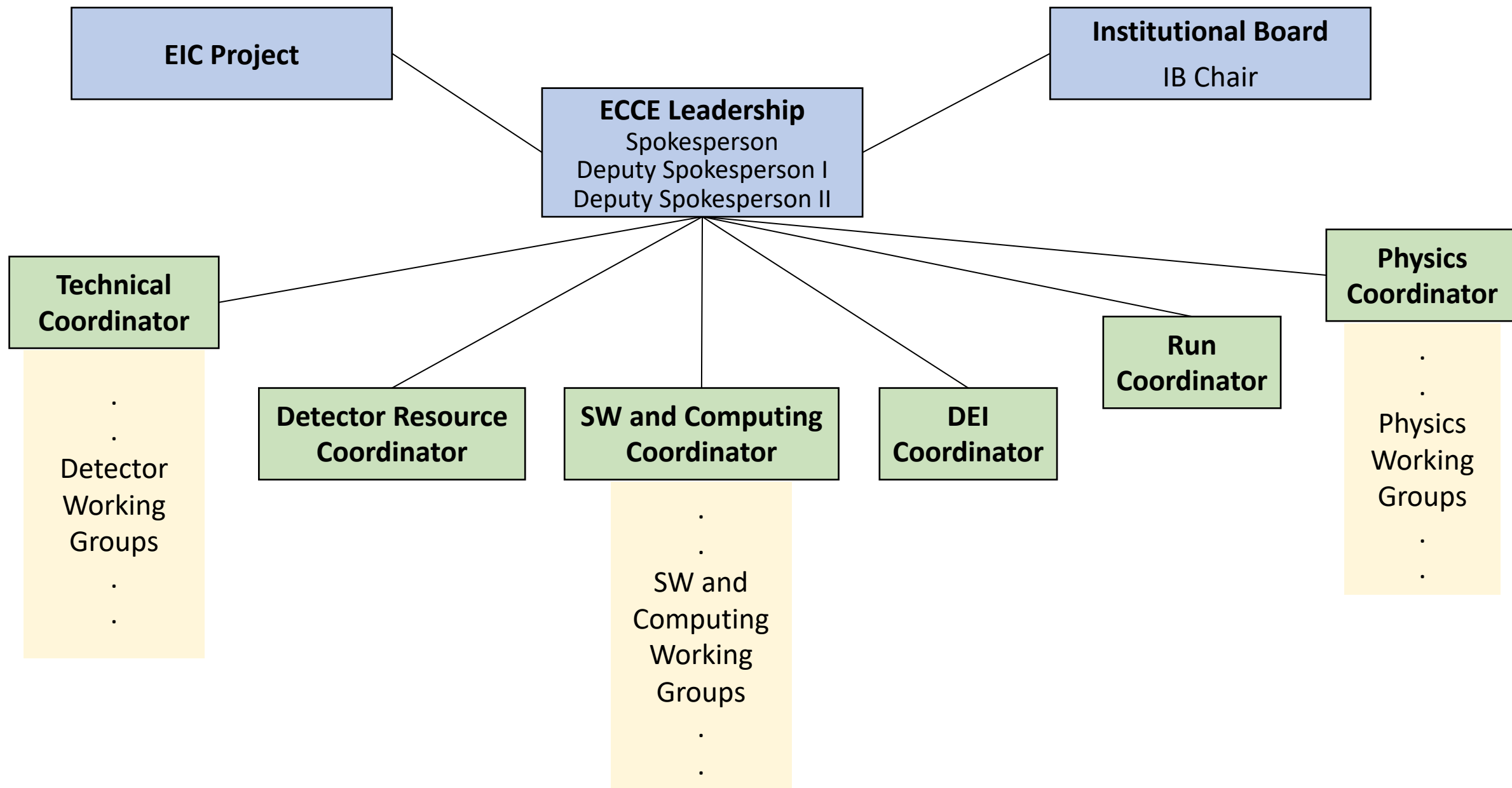
# Post-Proposal

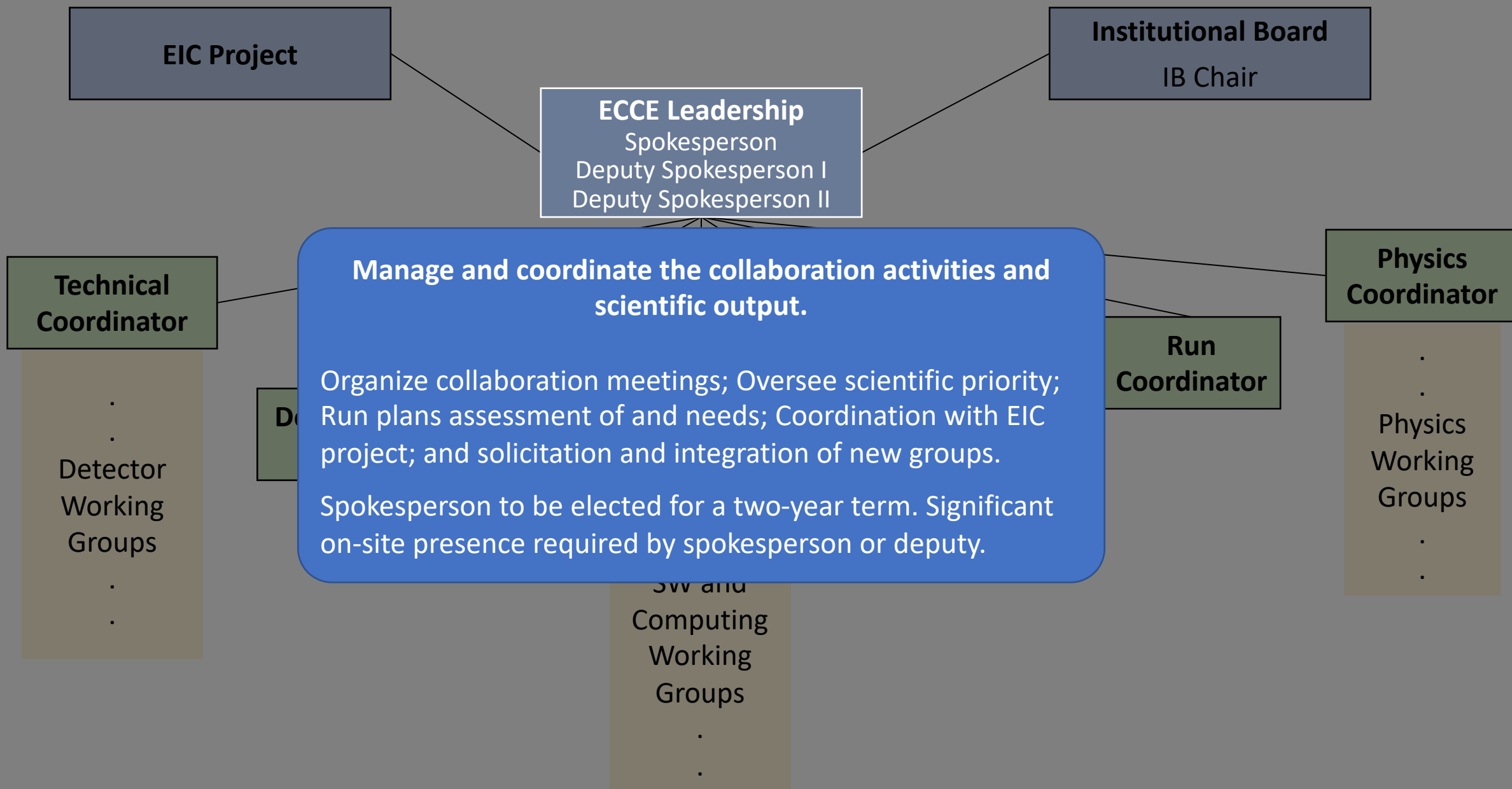
Following the proposal review, ECCE will focus on:

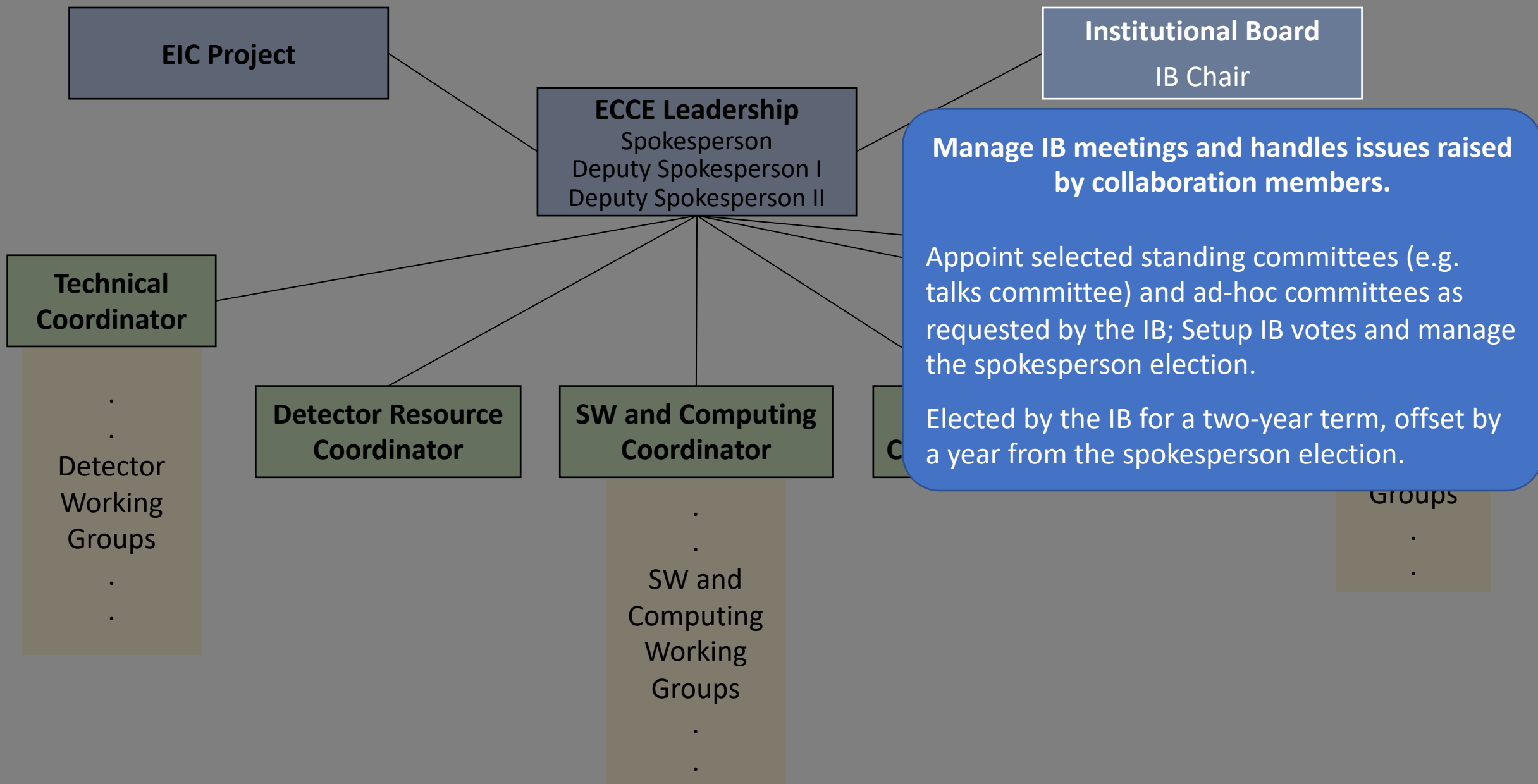
- Working with the EIC project to deliver an on-time and on-budget project detector,
- Developing monitoring tools required to support EIC commissioning using the ECCE detector,
- Developing data processing and analysis tools to allow producing physics results very soon after data collection begins.

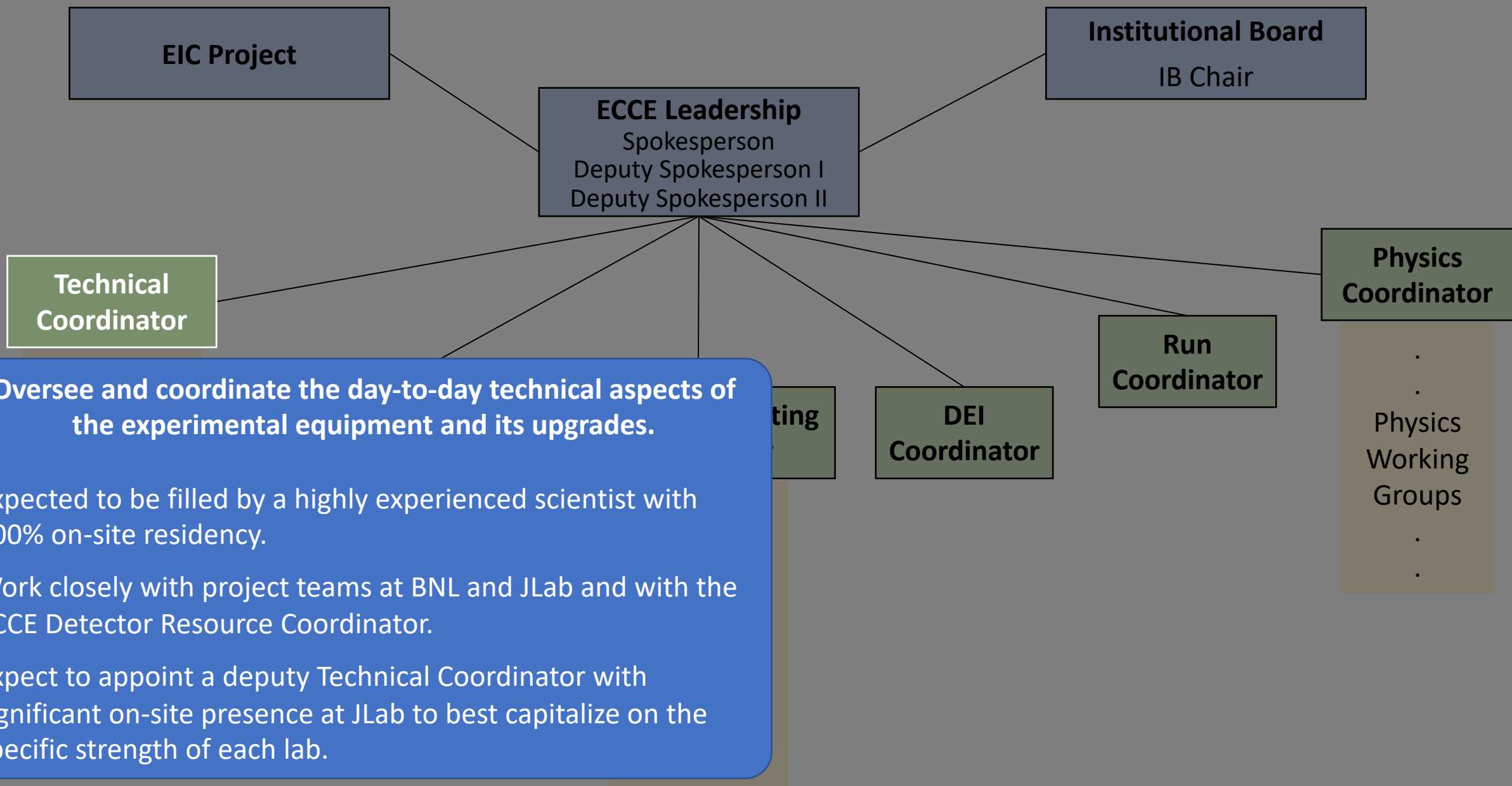
# Collaboration Transition

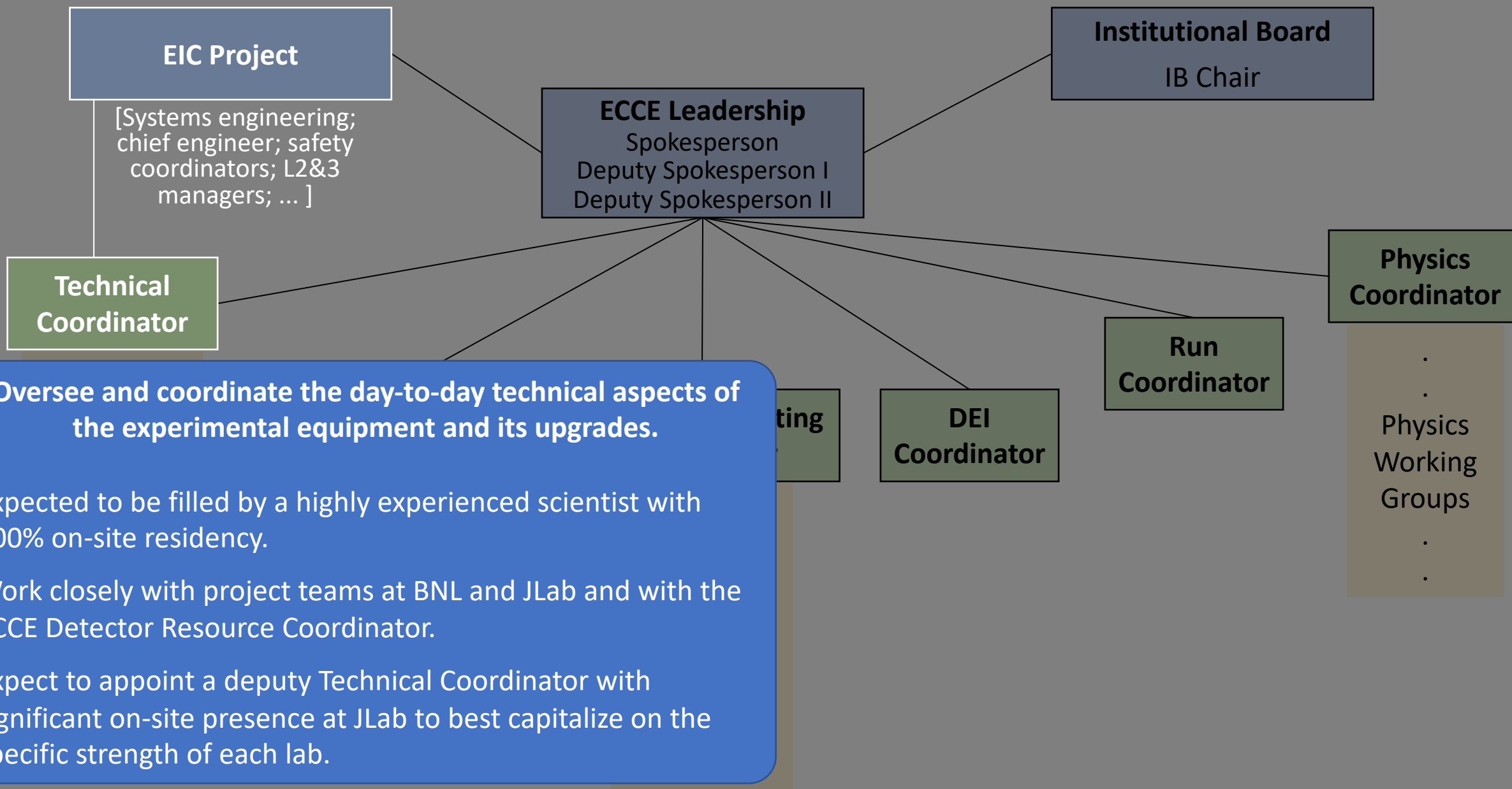
- For this stage, ECCE will evolve into a collaboration:
  - Groups will be invited to join,
  - Leadership structure will be formalized,
  - Bylaws will be formulated.
- The consortia put forward an initial structure, the collaboration will make the final decision.



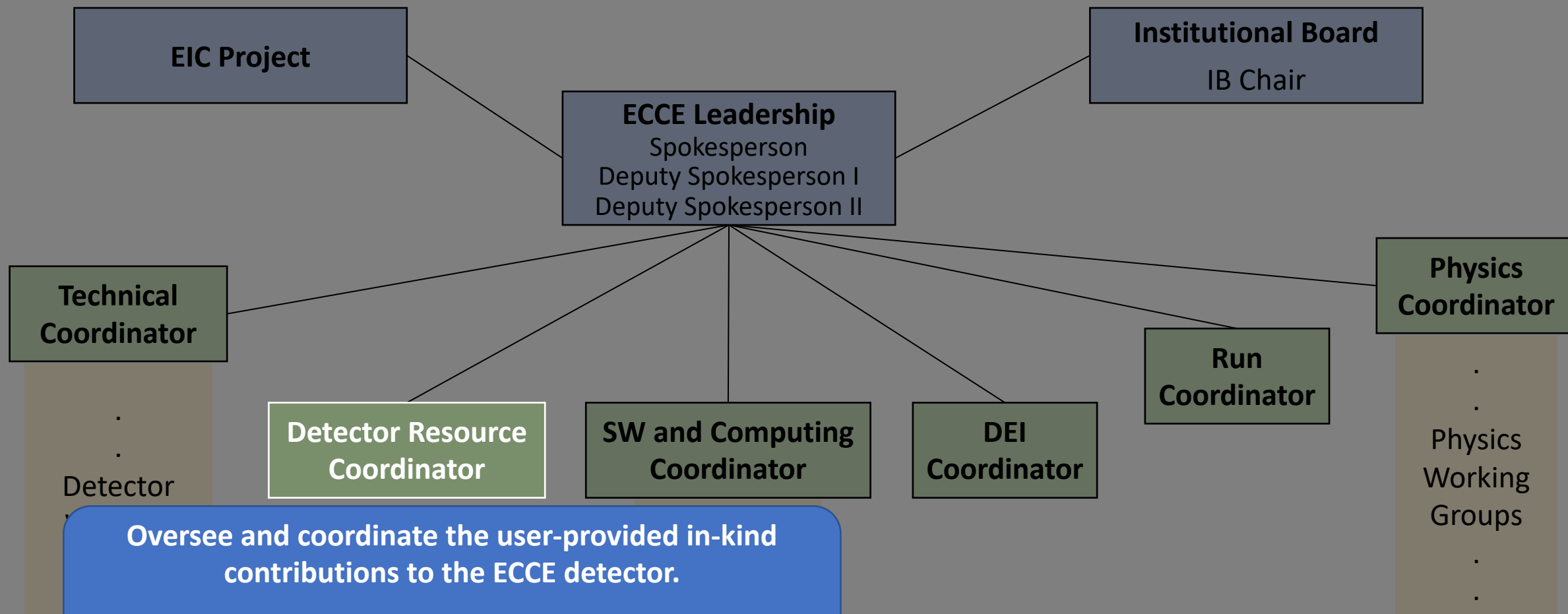








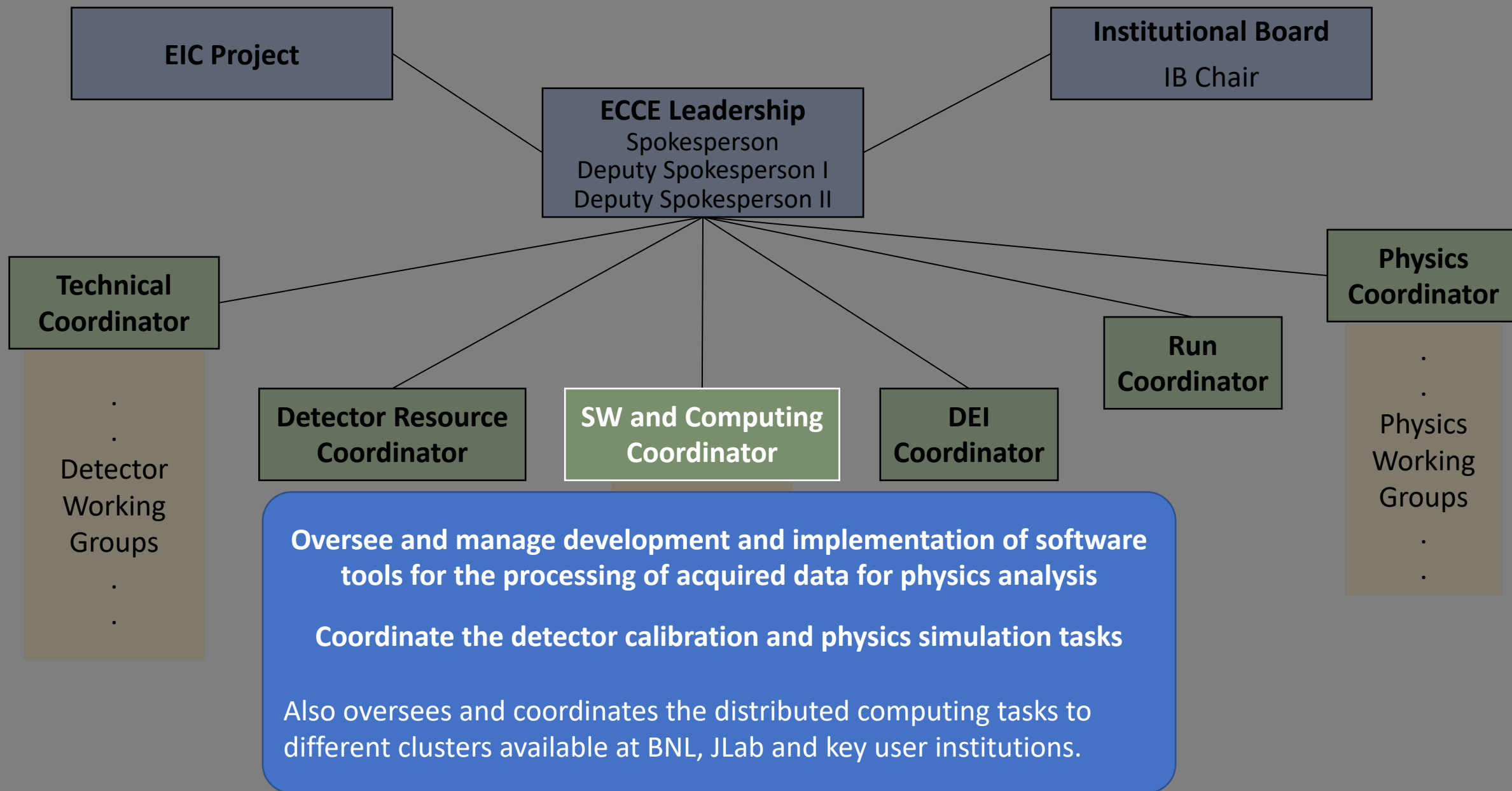


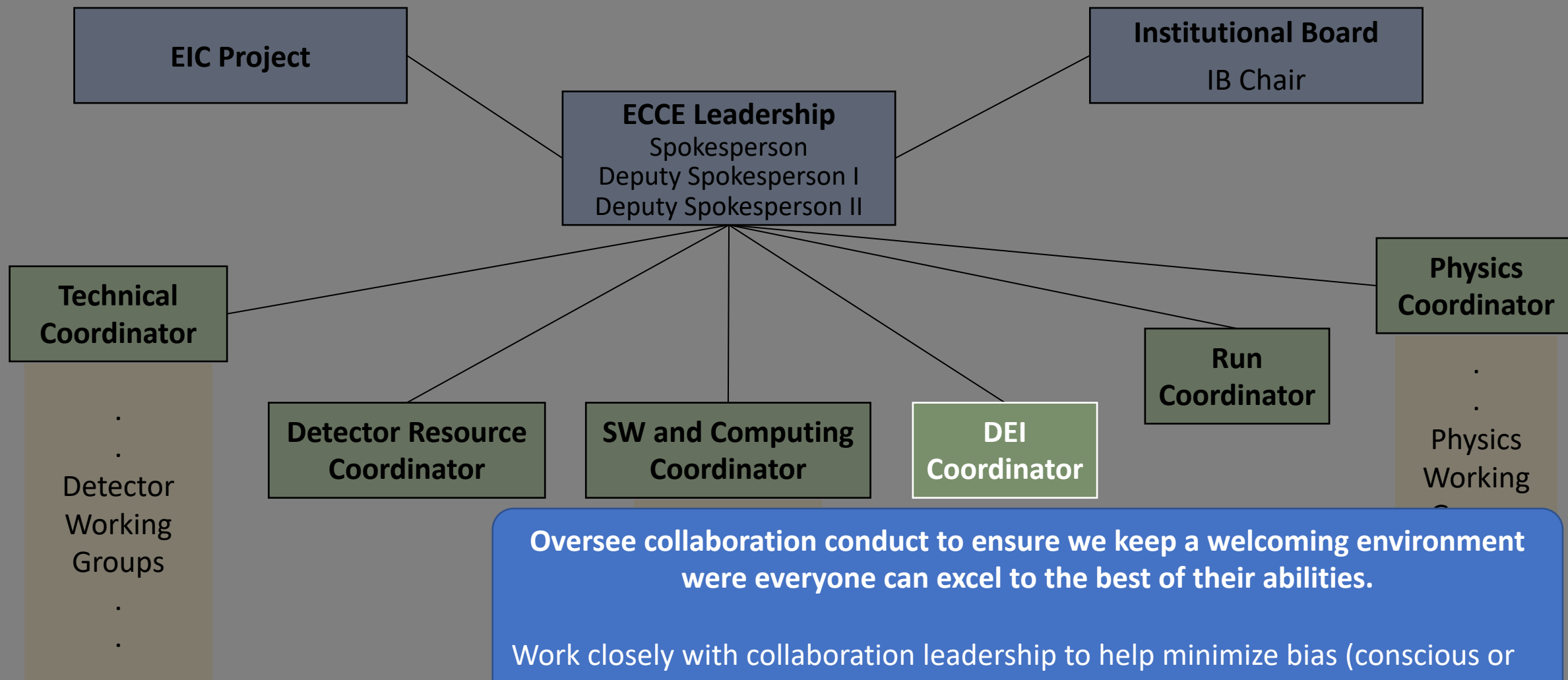


**Oversee and coordinate the user-provided in-kind contributions to the ECCE detector.**

Work with the collaboration and the EIC Project to help ensure the user commitments stay on track, and help resolve potential issues.

With time, evolve to Detector Upgrade Coordinator role. The Detector Resource Coordinator will always work in close coordination with the Technical Coordinator.



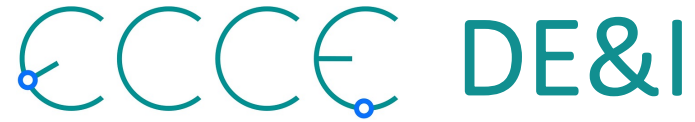


**Oversee collaboration conduct to ensure we keep a welcoming environment where everyone can excel to the best of their abilities.**

Work closely with collaboration leadership to help minimize bias (conscious or otherwise) in appointments.

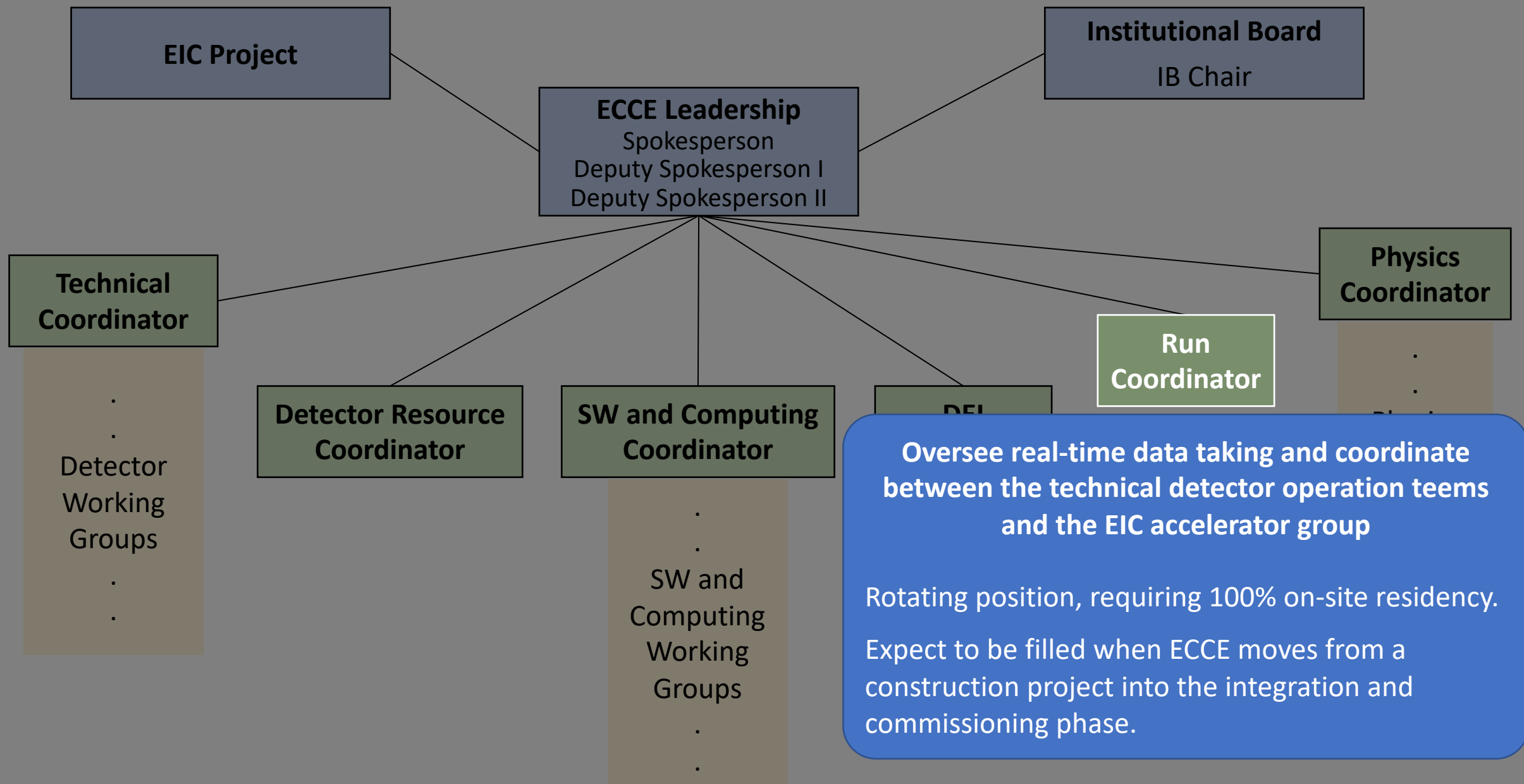
Serve as ex-officio member on committees making personnel decisions (e.g. talks committee) and will oversee uphold of ECCE code-of-conduct and bylaws.

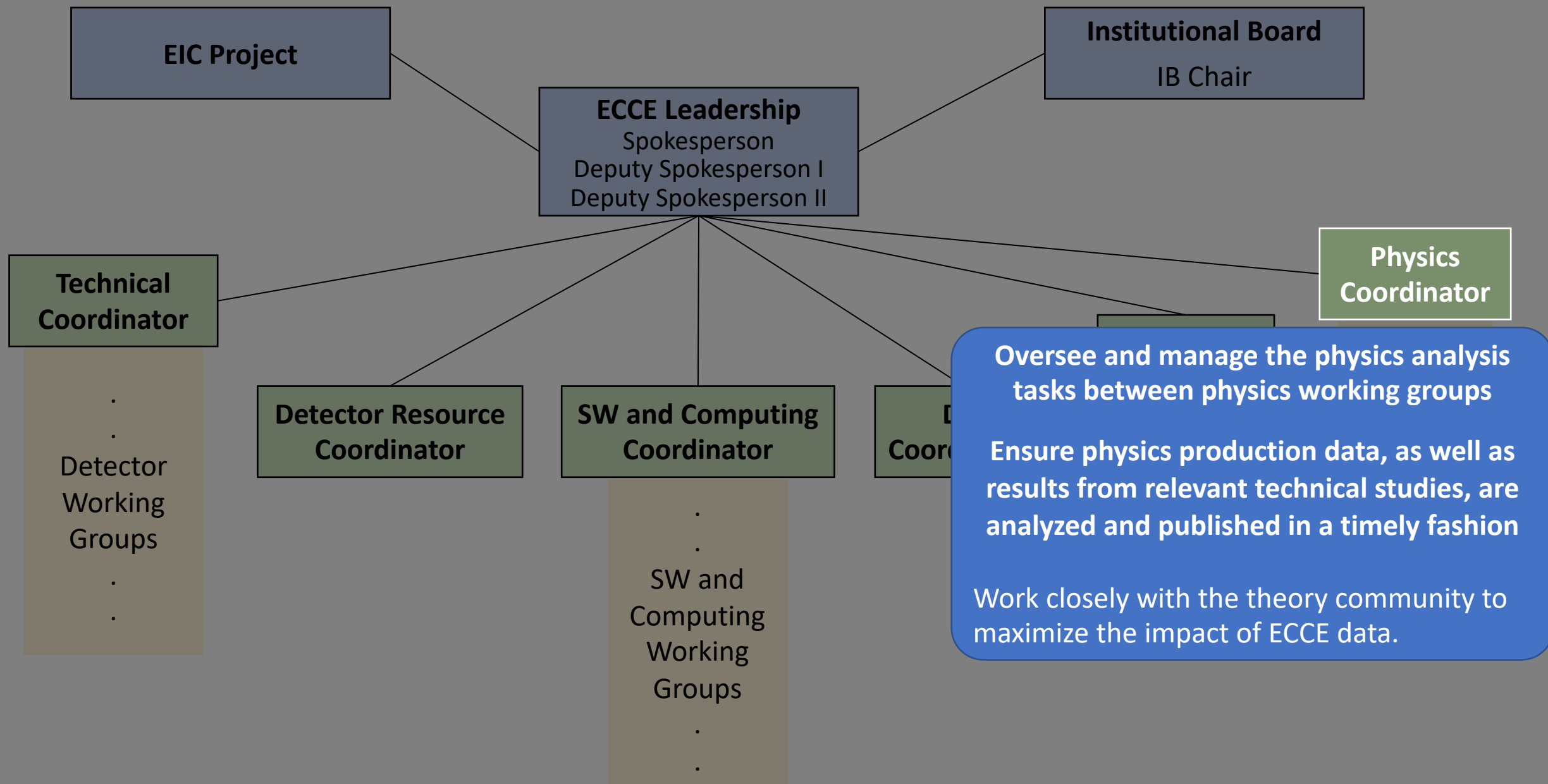
Form review committees when complaints of violations come up.



“ECCE will conduct itself in a way that allows all collaborators to do their job and perform to the best of their abilities, independently of their gender, origin, or background”

- Collaboration bylaws will be informed by Code-of-Conduct.
- Emphasis on personal responsibility of all leaders to support proper work environment.
- Procedure for active incident review when issues come up.
- Interact from our peer collaborations and continue to improve.





# Expected Responsibilities



Region	System	Technology	Institutions	Experience / Comments	Region	System	Technology	Institutions	Experience / Comments
Forward Endcap (Hadron direction)	Tracking	ITS-3 Si Disks	LANL, LBL, ORNL, MIT/BATES, EIC-China, EIC-Taiwan, EIC-Korea, Brunel (UK), Regina (Canada), Czech. Tech. Univ., BNL	Experience constructing previous Si trackers, most recently for sPhenix.	Backward Endcap (e <sup>-</sup> direction)	Tracking	ITS-3 Si Disks	LANL, LBL, ORNL, MIT/BATES, EIC-China, EIC-Taiwan, EIC-Korea, Brunel (UK), Regina (Canada), Czech. Tech. Univ., BNL	Experience constructing previous Si trackers, most recently for sPhenix.
		AC-LGAD	RICE, ORNL, BNL, UTSM	Experience in CMS			AC-LGAD	RICE, ORNL, BNL, UTSM	Experience in CMS
	PID	dRICH	UConn, Duquesne, Duke, JLab, Tsinghua/China	E&D (strong engineering) Simulations (Hall B RICH, Hall A/SBS RICH), HERMES RICH refurbishment		PID	mRICH	GSU, JLab	GSU originated mRICH concept and led its design
	EM Calorimetry	Longitudinally segmented, scintillating tile	ORNL, ISU, Ohio U., EIC-Japan, EIC-Korea, EIC-China, BNL	Experience with calorimeters in sPHENIX and ALICE		EM Calorimetry	PbWO4	AANL/Armenia, CUA, Charles U./Prague, FIU, IJCLab-Orsay/France, JLab, JMU, MIT, Lehigh U., UKY, Ohio U.	Experience with crystal fabrication and characterization, detector design and construction, technical support and infrastructure, readout electronics, simulations (Hall C EMCal & NPS, STAR ECAL)
	Hadron Calorimetry								
Barrel	Tracking	ITS-3 Si (vertex & sagitta)	LANL, LBL, ORNL, MIT/BATES, EIC-China, EIC-Taiwan, EIC-Korea, Brunel (UK), Regina (Canada), Czech. Tech. Univ., BNL	Experience constructing previous Si trackers, most recently for sPhenix.	Far-Forward	B0	AC-LGAD Tracking	UH, U. Kansas	ZDC at LHC, Roman Pots, fast timing
			μRWell	UVA, GWU, MIT, EIC-China, EIC-Korea, BNL			GEM construction for SBS; μRWell prototyping and testing at Fermilab	PWO4 Calorimeter	EIC-Israel
		AC-LGAD	RICE, ORNL, BNL, UTSM	Experience in CMS		Off-momentum Detectors	AC-LGAD Tracking	UH, U. Kansas	Fast timing, tracking experience at RHIC, LHC
			Roman Pots	AC-LGAD Tracking		IJCLab-Orsay/France, BNL, UH, U. Kansas, BNL	ASIC readout of AC-LGAD (OMEGA, ATLAS)		
	PID	hpDIRC	CUA, GSI, ODU, W&M, MIT/BATES	Design and construction (PANDA, GlueX), simulations	ZDC	PWO, W/Si, Pb/Si, Pb/Sci	EIC-Japan, KU	Experience with LHCf, RHICf development of FOCAL	
	EM Calorimetry	SciGlass	CUA, MIT, KU, Augustana, Ohio U., UC Boulder, UIUC, U. Regina	Glass fabrication and characterization, detector design and construction, technical support, simulations	Far-Backward	Low-Q <sup>2</sup> Detector	AC-LGAD Tracking	York U. Glasgow U.	Experience from CLAS12 tagger
	Hadron Calorimetry	Scintillating tiles (sPHENIX Reuse)	ISU, GSU	sPHENIX Construction			PWO4 Calorimeter	EIC-Israel	EM calorimetry, ZDC at LHC
					Luminosity Monitor	AC-LGAD Tracking	York U. Glasgow U.	Experience from CLAS12 tagger	
Electronics	Streaming readout electronics, Data Aggregation Modules		Columbia, ISU, UC Boulder, OU, ORNL, LLNL, UNH		Electronics expertise at RHIC, JLab				
	Streaming DAQ, Online Event Filter		CNU, ISU, MIT, LLNL, Morehead state, ORNL, PNNL, SBU, UC Boulder, UConn		Experience with sPHENIX streaming DAQ; CMS and GlueX computing				



# Summary



- ECCE is strong: 96 institutions with relevant expertise to deliver an on-time on-budget detector, optimized for the EIC science mission.
- Consortium structure was successful and effective for proposal stage.
- Ready to evolve to collaboration following proposal review:
  - Collaboration structure put forward by consortium IB,
  - DEI and code-of-conduct built in from day one,
  - Will be formalized in a collaboration formation meeting after the review.