News

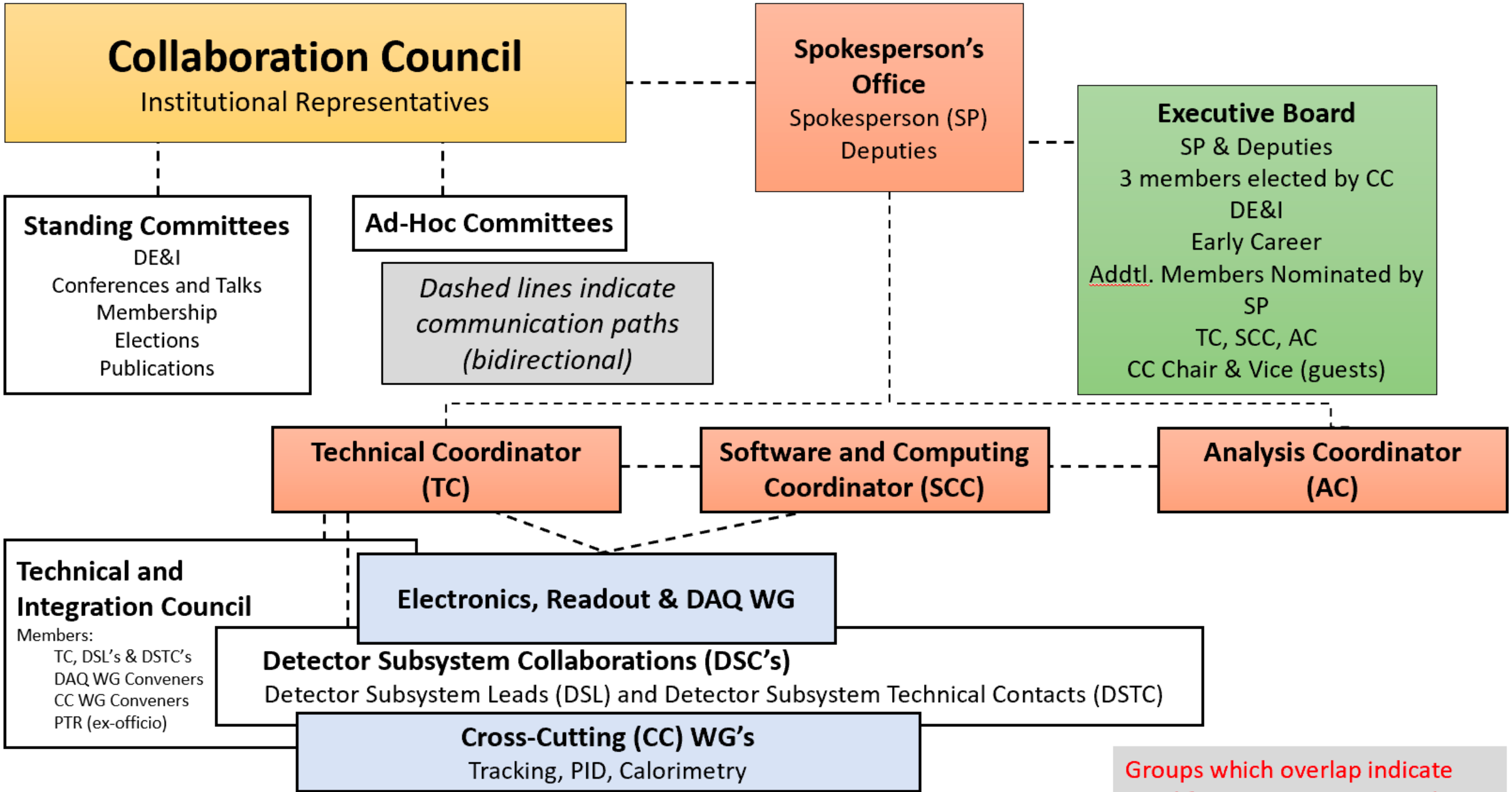
- **Reorganization of ePIC**
  - **Evolve DWGs** to a structure more appropriate to the (pre-)TDR/construction phase: **WGs -> Detector Subsystems**. Each project corresponds to a subdetector built by a **Detector Subsystem Collaboration** of the groups and institutions contributing to it. Each project collaboration will choose its **Detector Subsystem Lead/Detector Subsystem Technical Contact** work in concert with EIC project CAMS. The breakdown in projects to be discussed/optimized with collaboration.
  - **TOF DSC**: agreed to one subsystem for TOF, propose to have one DSL (Zhenyu Ye) and one deputy DSL (Satoshi Yano)
  - **PID Working Group**: Oskar Hartbrich (TOF), TBD (Cherenkov)
  - Latest (?) status may be found at https://indico.bnl.gov/event/18688/

- **EIC Project Review on PID detectors**
  - To assess the current state of all PID detector systems, serve as a status report for the EIC Project Management and DOE.
  - Either around the first two weeks of June or the first week of July

- **EIC User Group Meeting @ Warsaw** https://indico.cern.ch/event/1238718/
  - Early Career Workshop, EIC User Group meeting, ePIC meeting, Detector II/IP8
  - July 23-31, 2023

WHY DSCs

- Functional to:
  - Finalize the detector sub-systems for the **TDR** (CD2&3)
  - **Prepare the construction period**
    - *Please, note that the present 2-y term coincides with period of preparation of the TDR !*
  - All large-size collaborations have similar structures
- Groups involved in the Detector Sub-Systems:
  - Make their **responsibility explicit**
  - Support their engagement and enthusiasm
  - **Clarify the communication cha**in in matter of Detector Sub-Systems
- Collaboration community:
  - **Support the aggregation** of different groups within the same Detector Sub-System
  - Offer an **opportunity of enlargement of the collaboration** also via the direct efforts of the groups in a Detector Sub-System to encourage partners, who are presently not ePIC members
- Financial Aspects
  - The **explicit links of groups in a Detector Sub-System** to their Detector Sub-System realization supports **actions** (by PM, ePIC management and Detector Sub-Systems members) **for in-kind contributions**
- Project progress:
  - Establish **direct links between the Detector Sub-Systems and the EIC Project CAMs**
  - **DSL and Task responsibles can integrated in the Project at level 4 and 5**



Groups which overlap indicate need for communication and horizontal integration.

WHY DSCs & CROSS-CUTTING WGs

- Electronics, Read-out and DAQ WG
  - Crossing all detector subsystems
  - Crossing both subsystems and software area
  - → No doubt about the cross-cutting nature of this effort
- Detector cross-cutting WGs (Tracking, calorimetry, PID)
  - **Request by the detector community** to preserve a forum for
    - Reciprocal information;
    - Discussion about common technical aspects;
    - Identify needs of common efforts to avoid duplication.
  - Cross-cutting WGs are in no way board with decision power:
    - they do not sit between the DSCs and the TIC !
  - Light meeting load expected.
- A specific case: the Tracking cross-cutting WG
  - Presently, ePIC does not have yet an optimized tracking configuration
  - Therefore, presently, the new WG has to act as a long-term task-force in view of this goal;
  - The single DSCs cannot perform the global optimization independently

On-going/Planned Work

[1] https://wiki.bnl.gov/EPIC/index.php?title=TOFPID
[2] https://indico.bnl.gov/event/18973/
[3] https://wiki.bnl.gov/conferences/index.php/ProjectRandDFY23

Simulation [1]

- DD4HEP geometry, digitization, reconstruction (**ORNL, UIC, Hiroshima, BNL, OSU**)
  - Timing resolution requirement
  - Spatial resolution requirement
  - Material budget requirement

Project Engineering and Design (PED) [2]

- Mechanical engineering (**NCKU/Purdue, ORNL**)
  - Mechanical support and services
  - Cooling system
- Electric engineering (**BNL within DAQ WG**)
  - Precision clock distribution (<5 ps)
  - Timing chips and streaming readout
  - Readout board

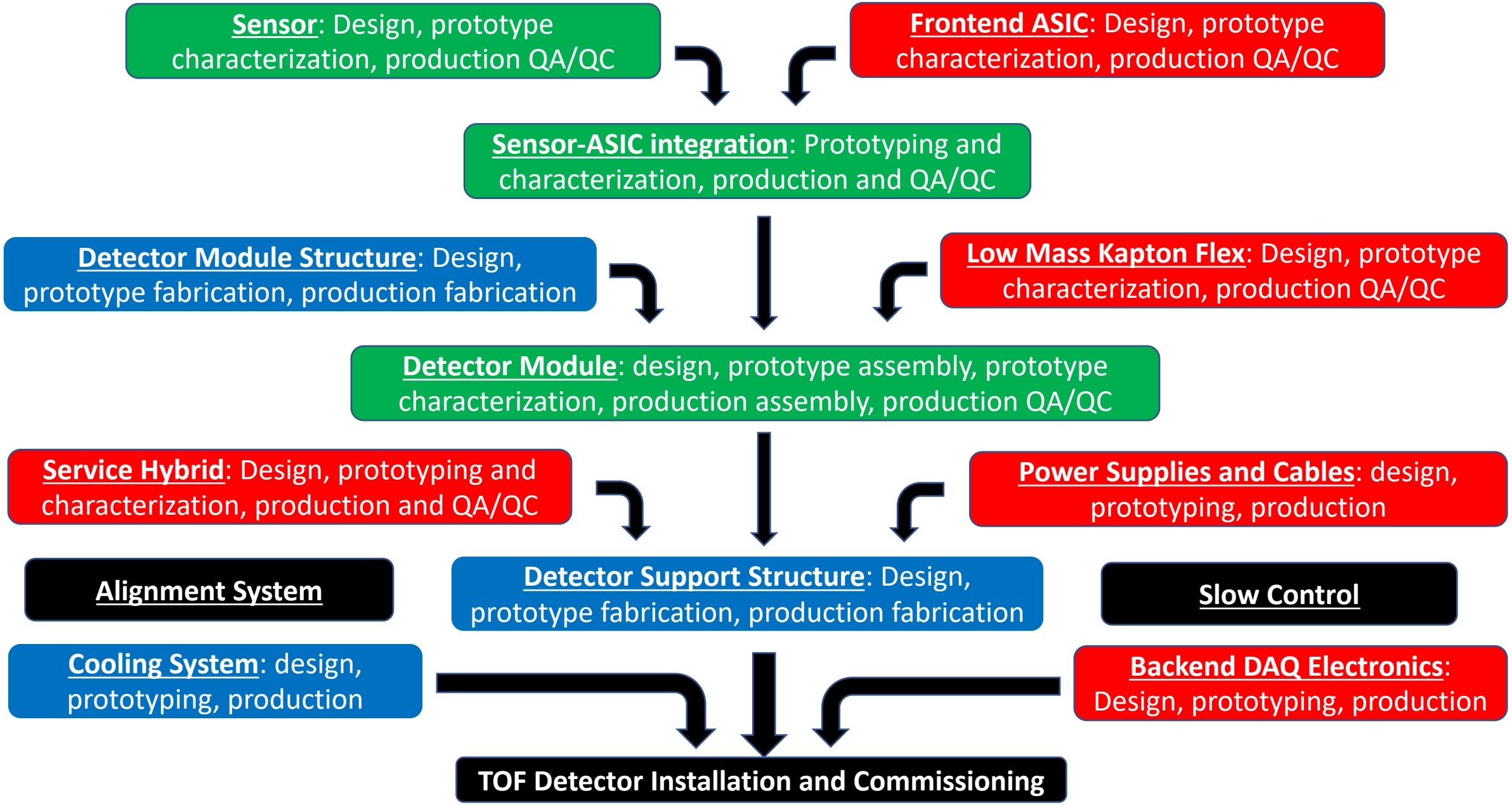
eRD112 [3]

- Sensor (**BNL-IO, UCSC, UIC/Fermilab, LANL, ORNL, Rice**)
  - BNL-IO, HPK and FBK productions
  - Lab/beam test, irradiation
- Sensor-ASIC integration (**UIC**)
- Module mechanical structure (**NCKU/Purdue**)
  - Low-density composite structure

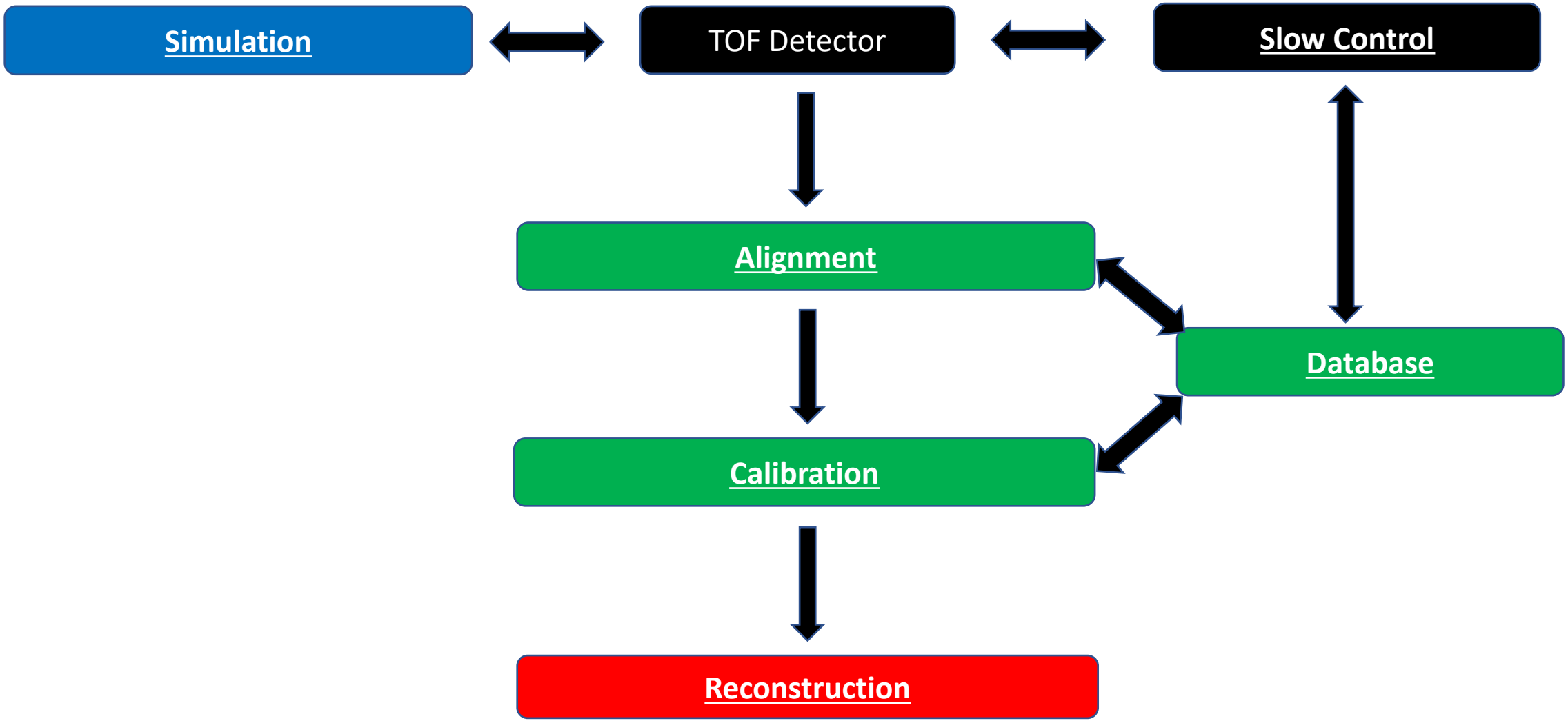
eRD109 [3]

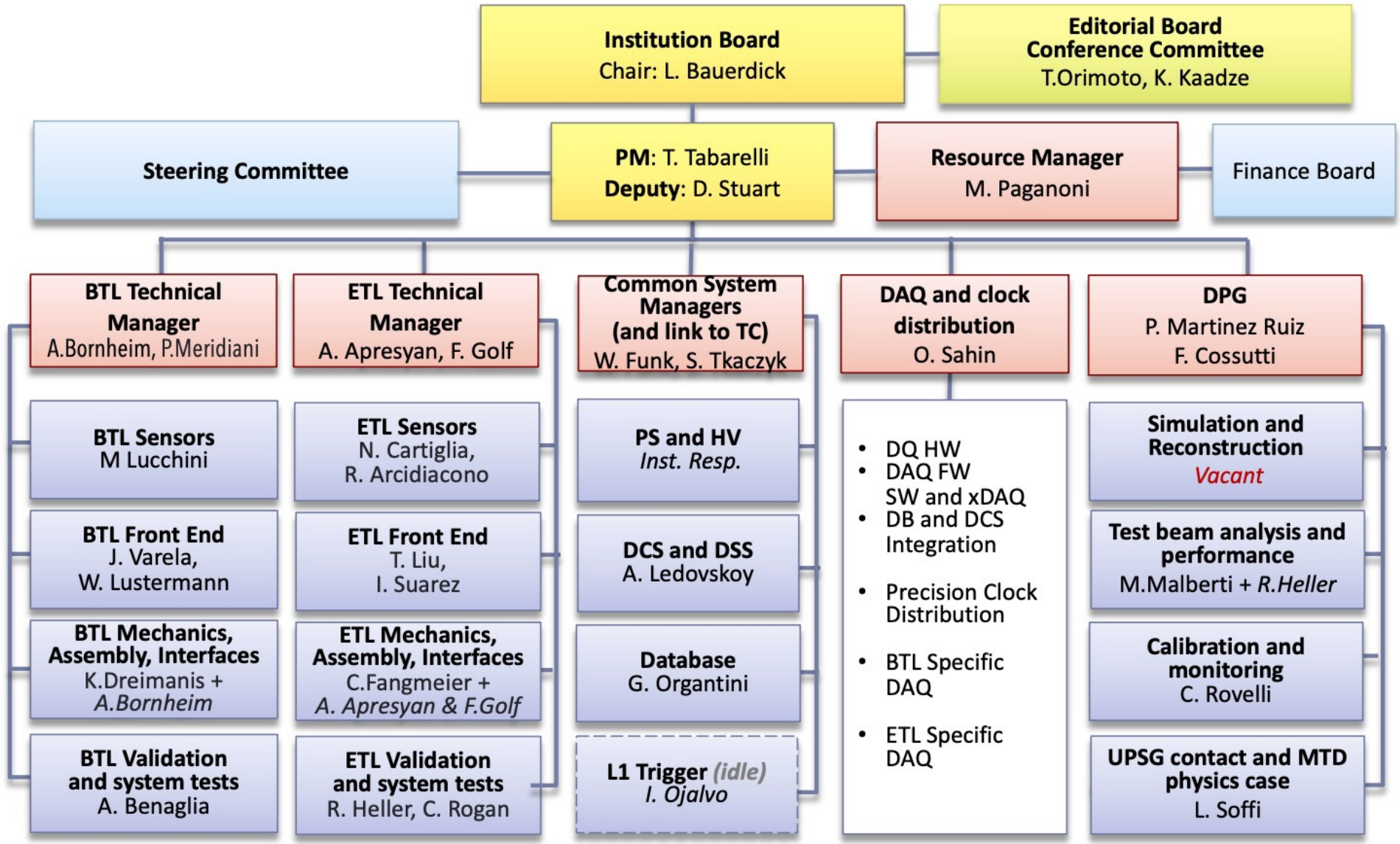
- Frontend ASIC:
  - EICROC (**IJCLab/OMEGA, BNL**)
  - FCFD (**Fermilab**)
  - FAST/HPSoC/ASROC (**UCSC**)
- Frontend electronics
  - Low-mass flexible Kapton PCB (**ORNL**)
  - Barrel TOF service hybrid (**ORNL**)
  - Endcap TOF service hybrid (**Rice**)

TOF Detector - Hardware



TOF Detector - Software





Snapshot 2021, July 1st