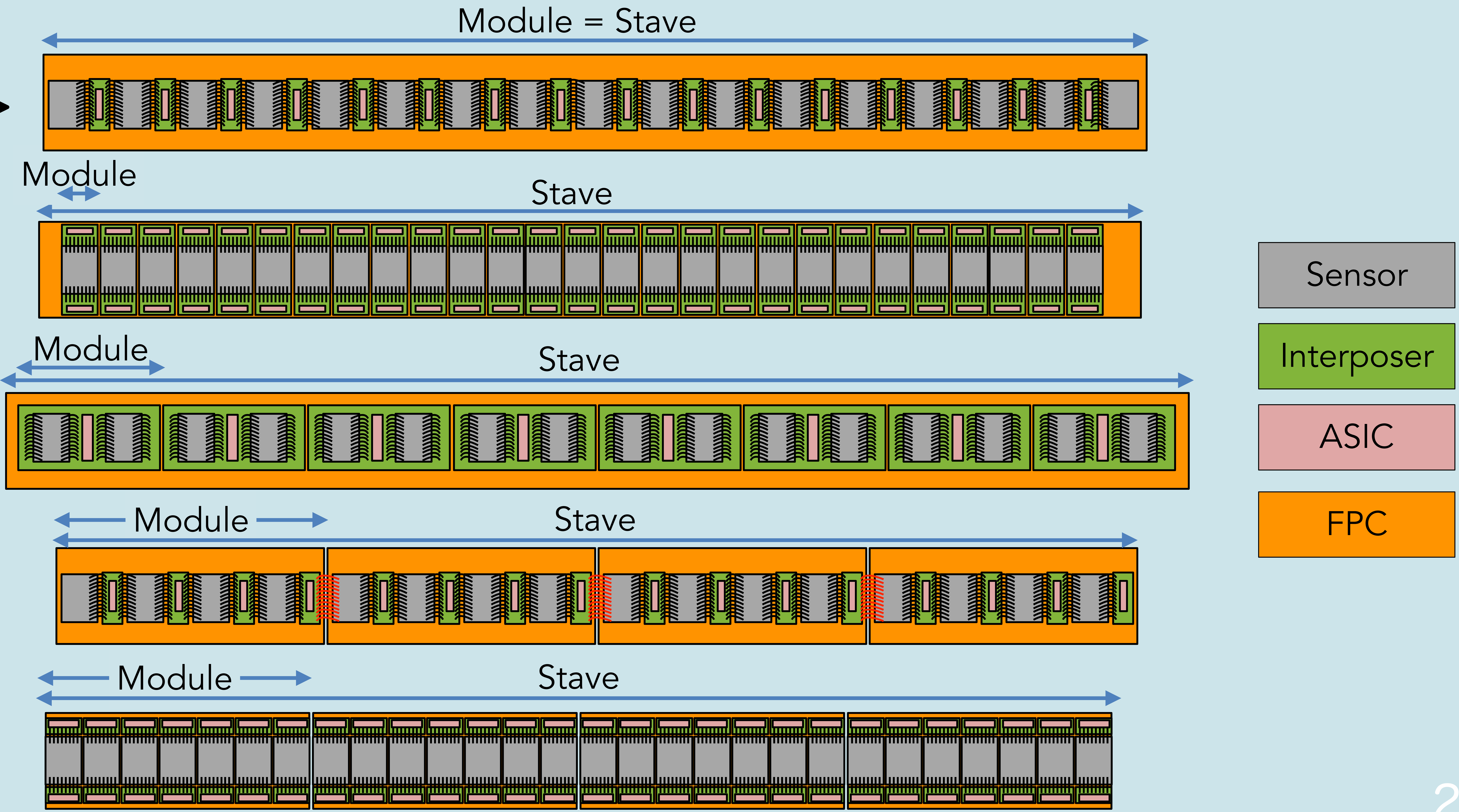
BTOF

To move forward

Satoshi Yano (Hiroshima University)

Barrel TOF design ideas

Baseline Design



☆ CD2

☆ Install to ePIC

☆ CD3

☆ Early-CD4

m=month

EIC Critical Decision Plan (Old)	
CD-0/Site Selection	December 2019
CD-1	June 2021
CD-3A	Jan 2024
CD-3B	Jan 2025
CD-2	Jan 2025
CD-3	Apr 2025
Early CD-4	Apr 2032
CD-4	Apr 2034

EIC Critical Decision Plan (Latest)	
CD-0/Site Selection	**December 2019**
CD-1	**June 2021**
CD-3A	**March 2024**
CD-3B	**January 2025**
CD-2/3C	Q2 FY26
CD-3	Q2 FY27
Early CD-4	Q1 FY34
CD-4	Q4 FY35

Mechanical Production

Mechanical QA

Sensor Production

Sensor QA

ASIC Production

ASIC Package

ASIC QA

Interposer Production

Interposer QA

FPC Production

FPC QA

Electronics Purchase

RB Assembling

PB Assembling

RB QA

PB QA

SH Assembling

SH QA

Module assembling

Module QA

Stave assembling

Stave QA

BTOF construction

BTOF QA

Install to ePIC

Commisioning

- **WP1: Sensor**
- **WP2: Frontend Electronics**
- **WP3: Module Integration and Assembly**
- **WP4: System Tests and Validation**
- **WP5: Mechanical Structure**
- **WP6: DAQ and Clock**
- **WP7: DCS**
- **WP8: Simulation, Software & Calibration**

In the near future...

Mechanical Production **Institute I**

Mechanical QA **Institute I**

Sensor Production **Company K**

Sensor QA/QC **Institute A**

Sensor QA/QC **Institute B**

Sensor QA/QC **Institute C**

ASIC Production **Company L**

ASIC Package **Institute D**

ASIC QA **Institute D**

ASIC QA **Institute E**

Interposer Production **Institute F**

Interposer Production **Institute J**

Interposer QA **Institute F**

Interposer QA **Institute J**

FPC Production **Company M**

FPC QA **Institute G**

Electronics Purchase **Institute H**

RB Assembling **Institute H**

PB Assembling **Institute H**

RB QA **Institute H**

PB QA **Institute H**

SH Assembling **Institute H**

SH QA **Institute H**

Module assembling **Institute A**

Module QA **Institute A**

Module assembling **Institute C**

Module QA **Institute C**

Stave assembling **Institute D**

Stave QA **Institute D**

BTOF construction **BNL**

BTOF QA **BNL**

Install to ePIC **BNL**

Commisioning **BNL**

Task	Subtask	Institute	Person
Sensor	R&D		
	QA		
ASIC	R&D		
	Packaging		
	QA		
Interposer	R&D		
	QA		
FPC	R&D		
	QA		
PB	R&D		
	Assembling		
	QA		
RB	R&D		
	Assembling		
	QA		
SH	R&D		
	Assembling		
	QA		
Mechanical	R&D		
	QA		
Module	R&D		
	Assembling		
	QA		
Stave	R&D		
	Assembling		
	QA		

- In the near future, we would like to determine in more detail what each task entails and who will be responsible for and work on each task

- The left table is the starting point. Let's build each task in detail by the dedicated WP

- By creating this table, it becomes clear what is being done, where, and by whom, so that future personnel and budget allocations can be determined efficiently and without waste

Preparation of purchasing the "baseline" sensor

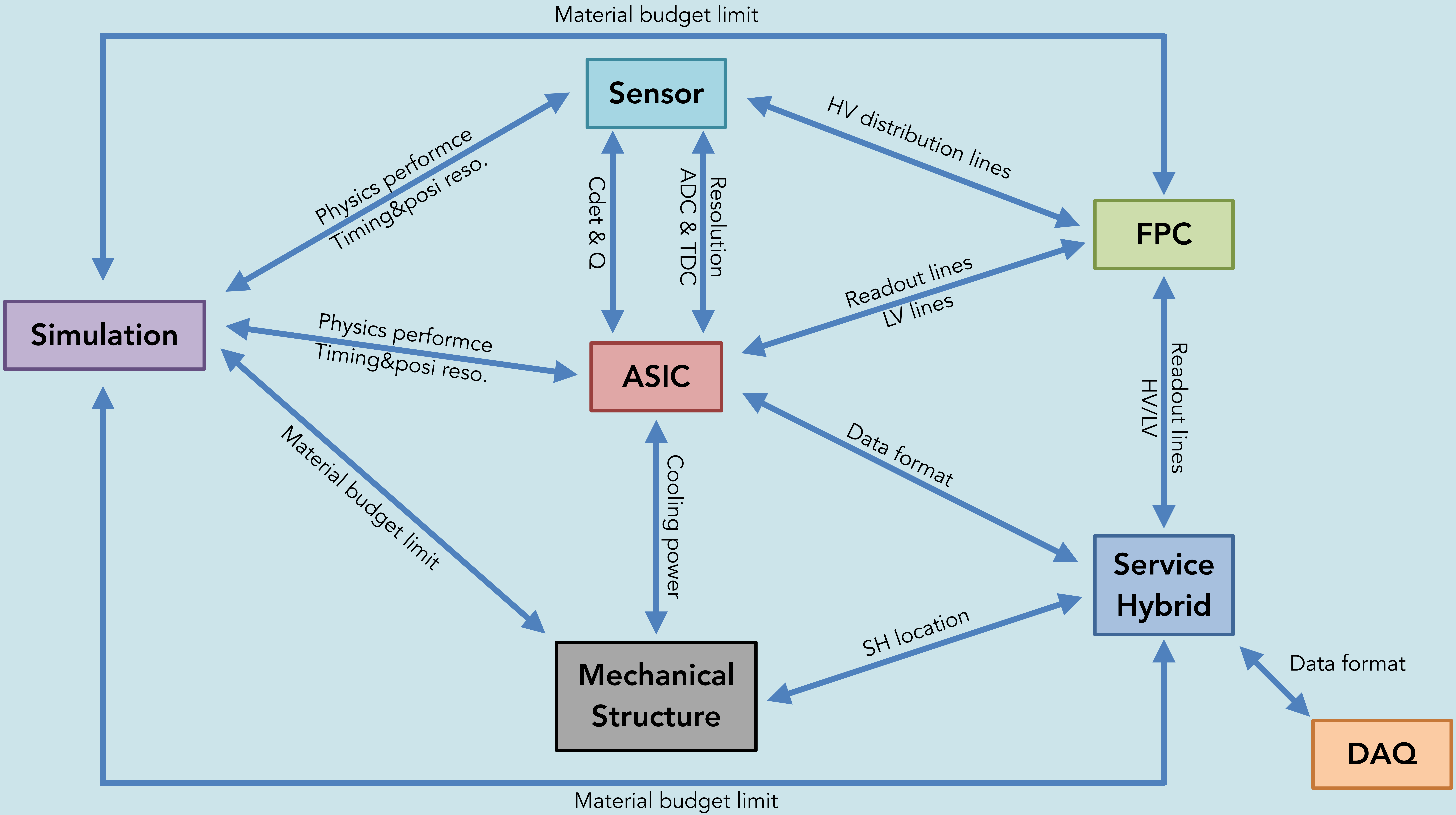
- We are preparing to purchase some amount of "baseline" sensors from HPK
  - 64x2 = 128 ch, 10x0.5 mm^2 readout pads, 50μm thickness

- The sensors will be share among us to facilitate developments, e.g. electronics, assembling procedure e.t.c.

- HPK proposed to produce 30μm thickness sensors instead of 50μm
  - They are worried about the yield of 50μm

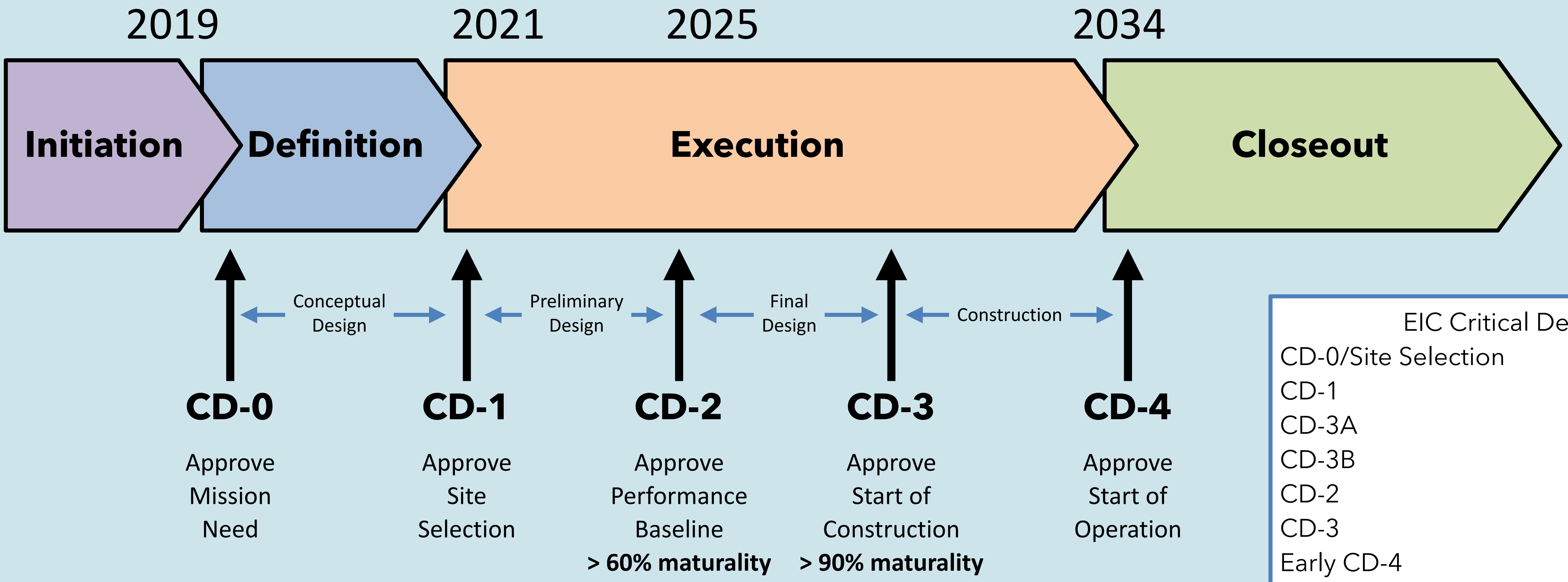
- **We would like to know how many sensors do we need? Is 30μm thickness sensor fine?**

Backup


Material budget limit
Sensor
HV distribution lines
FPC
Physics performce
Timing&posi reso.
Cdet & Q
ADC & TDC
Resolution
Simulation
Physics performce
Timing&posi reso.
ASIC
Readout lines
LV lines
Readout lines
HV/LV
Material budget limit
Cooling power
Data format
Service Hybrid
SH location
Mechanical Structure
Data format
DAQ
Material budget limit

ePIC and EIC schedule (OLD@March 2023)

EIC Critical Decisions Status and Plans



2019 2021 2025 2034

Initiation **Definition** **Execution** **Closeout**

Conceptual Design

Preliminary Design

Final Design

Construction

CD-0

Approve
Mission
Need

CD-1

Approve
Site
Selection

CD-2

Approve
Performance
Baseline
> 60% maturality

CD-3

Approve
Start of
Construction
> 90% maturality

CD-4

Approve
Start of
Operation

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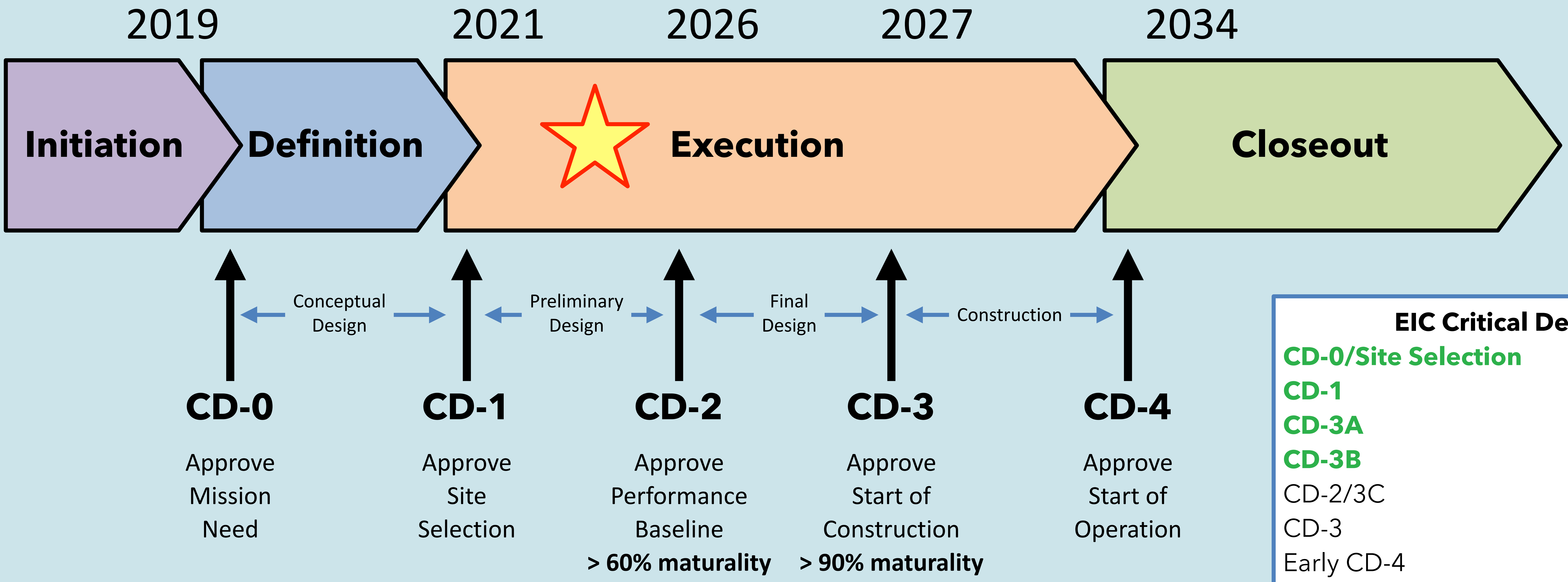
ePIC and EIC schedule (best guess)

EIC Critical Decisions Status and Plans



2019 2021 2026 2027 2034

Initiation **Definition** **Execution** **Closeout**

Conceptual Design · Preliminary Design · Final Design · Construction

CD-0
Approve
Mission
Need

CD-1
Approve
Site
Selection

CD-2
Approve
Performance
Baseline
> 60% maturality

CD-3
Approve
Start of
Construction
> 90% maturality

CD-4
Approve
Start of
Operation

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CD-4	Q4 FY35

TOF WPs

- Sensor: Simone Mazza (UCSC), Satoshi Yano (HU)
- Frontend Electronics: Wei Li (Rice Univ.)
- Module Integration and Assembly: Mathieu Benoit (ORNL)
- System Tests and Validation: Takashi Hachiya (NWU), Priswish Tribedy (BNL)
- Mechanical Structure: Andy Jung (PU), Yi Yang (NCKU)
- DAQ and Clock: Tonko Ljubicic (RU)
- DCS: Frank Geurts (RU)
- Simulation, Software & Calibration: Kentaro Kawade (SU), Tommy Tsang (KU)