BI Coordination Package in AWAKE

Edda Gschwendtner, CERN

AWAKE CP BI Kick-Off Meeting, 27 September 2018

AWAKE Collaboration Structure

Collaboration Board (CB), A. Caldwell

Management Board (MB)
A. Caldwell

Physics and Experiment Board (PEB)
P. Muggli

Technical Board (TB)
E. Gschwendtner

CERN AWAKE Steering Board
→ EATSMB
F. Bordry

Collaboration Institutes

Coordination Package Institutes:
CPI: Experiment, P. Muggli
CPI: Simulation, K. Lotov
CPI: Run 2, E. Adli

Work Packages Institutes

CERN AWAKE Project
E. Gschwendtner

Coordination Package:
CP: SPS Beam and Synchronization, H. Damerau
CP: Proton and Electron Beam Lines, C. Bracco
CP: Electron Source System, S. Doebert
CP: Infrastructure, Global Integration and Installation, A. Pardons
CP: Laser Beam System, V. Fedosseev
CP: Experimental Area, E. Gschwendtner

26 Work Packages CERN

CERN Work Packages

	Work Package	WP Leader	Group
WP1	SPS Beam	Elena Shaposhnikova	BE-RF
WP2	RF Synchronization	Wolfgang Hoefle, Andy Butterworth	BE-RF
WP3	Electron Source and High Power	Steffen Doebert	BE-RF
WP4	Proton Line	Chiara Bracco	TE-ABT
WP5	Electron Line	Chiara Bracco	TE-ABT
WP6	Shielding and Dump	Ans Pardons	EN-EA
WP7	Laser Beam Line	Valentin Fedosseev	EN-STI
WP8	SMI Measurements	Edda Gschwendtner	EN-EA
WP9	Experiment beam line	Edda Gschwendtner	EN-EA
WP10	Simulations	Alexey Petrenko	EN-EA
WP11	Magnets	Jeremie Bauche	TE-MSC
WP12	Power Converters	Gilles Le Godec	TE-EPC
WP13	Vacuum	Jan Hansen	TE-VSC
WP14	Beam Instrumentation	Stefano Mazzoni	BE-BI
WP15	Interlock	Richard Mompo	TE-MPE
WP16	Mechanical Design	Nicolas Chritin	EN-MME
WP17	Civil Engineering	John Osborne	SMB-SE
WP18	Cooling and Ventilation	Michele Battistin	EN-CV
WP19	Electrical Service	Thierry Charvet, Jean-Claude Guillaume	EN-EL
WP20	Transport and Handling	Caterina Bertone	EN-HE
WP21	Access	Vitor Rios	BE-ICS
WP22	Fire and Gas	Silvia Grau	BE-ICS
WP23	Survey	Jean-Frederic Fuchs	EN-ACE
WP24	Ethernet	Maryse Da Costa	IT-CS
WP25	Control	Marine Gourber-Pace	BE-CO
WP26	Radiation Protection	Helmut Vincke	HSE-RP

EDMS Nr: 1505432

New AWAKE Collaboration Structure

Collaboration Board (CB), A. Caldwell

Management Board (MB)
A. Caldwell

Physics and Experiment Board (PEB)
P. Muggli

Technical Board (TB)
E. Gschwendtner

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CP: Infrastructure, Global Integration and Installation, A. Pardons
CP: Laser Beam System, V. Fedosseev
CP: Experimental Area, E. Gschwendtner
CP: Plasma Cell R&D, A. Sublet
CP: Beam Instrumentation, S. Mazzoni

26 Work Packages CERN

CERN AWAKE Organization

AWAKE Steering Board: EATSMB

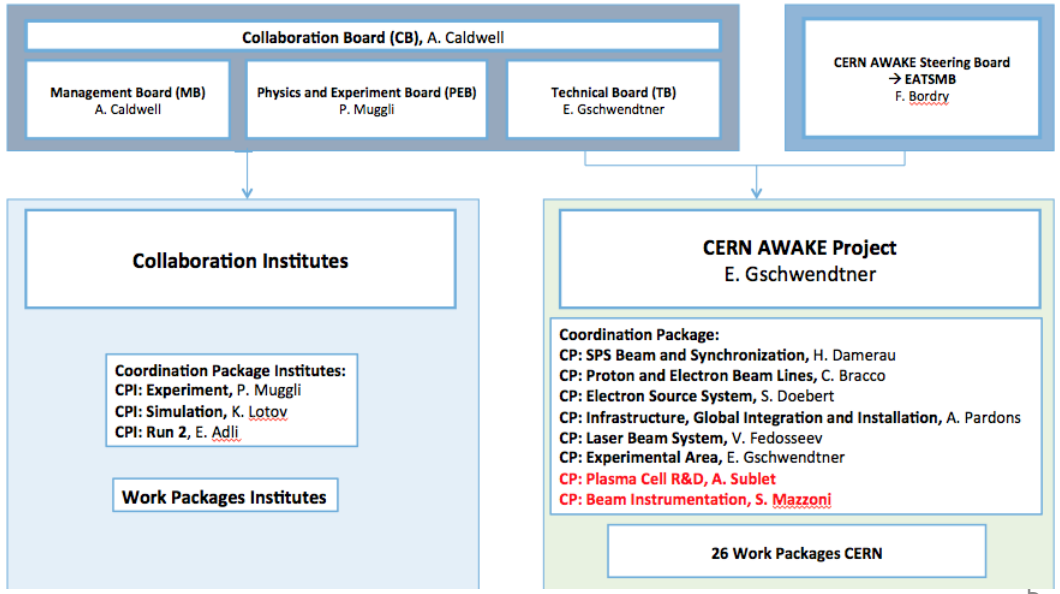
Strategically pilots the CERN AWAKE project. Review and decision making body to provide **guidance and resources** and set direction of the CERN project. Decision making authority and **possibility to allocate resources.**

Coordination Package Leaders:

The CP Leaders are **responsible for the design and commissioning of their Coordination Packages** and follow up the specifications of the different equipment and services as well as its integration and installation. The CPL **coordinates the related studies and activities**, **follows up work progress** and **insures that milestones are achieved according to plans**.

Regular meetings are organized by the CPL and the actions and minutes are stored on EDMS in the corresponding Coordination Package nodes. In addition dedicated meetings are held to follow up specific actions and issues concerning this CP.

The CPL regularly reports to the CERN Project Team Meetings.



EDMS Nr. 1502797

CERN ←→ Institutes

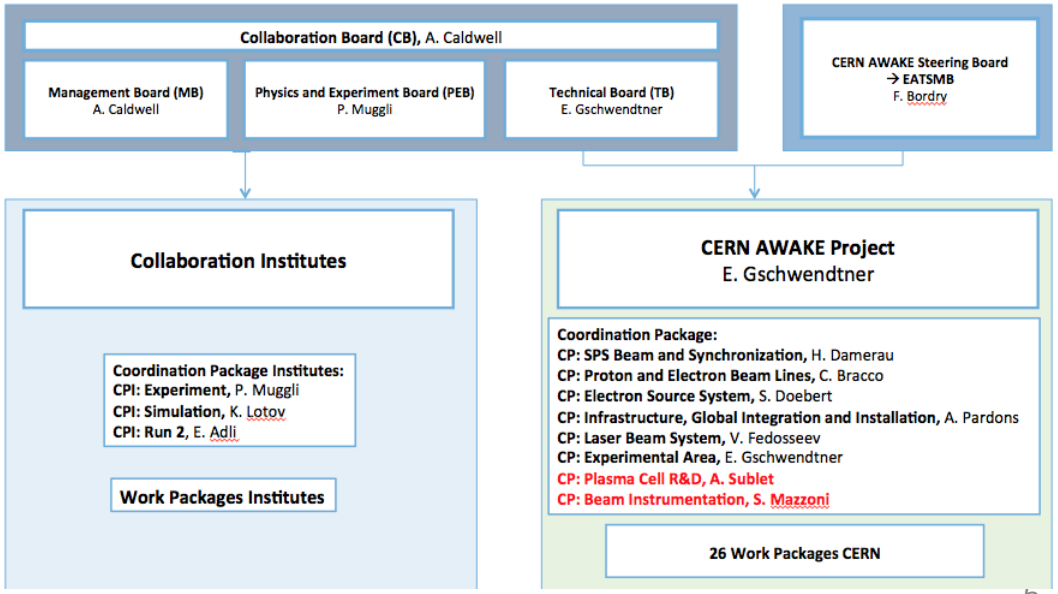
Link between the collaboration institutes and the CERN AWAKE project is organized through

Technical Coordinator/Technical Board:

The Technical Coordinator coordinates **design, integration, interfaces** and **commissioning of the experiment**, **planning and milestone tracking** of the experiment, and **specifications for the technical implementation** of the experiment. The TB is the principal steering group in all matters of technical coordination and is chaired by the TC, ie the CERN Project Leader.

Physics and Experiment Coordinator/Board:

The Coordinator defines the Physics **goals of the experiment**, **set the simulation**, **measurement and data analysis strategy**, formulate the specifications on the beams, plasma cell and related equipment and diagnostics devices and defines the data analysis tools and strategies. The PEB is a body headed by the PEC to minotor and coordinate activities related to the mandate of the PEC.



EDMS Nr. 1502797

Mandate of New Beam Instrumentation CP

The Instrumentation Coordination Package (CP) for the AWAKE project shall:

- **Review the performance of existing instrumentation** and identify the need for upgrades and improvements;
- **In coordination** with the other CPs, **define and propose new diagnostics** for electron, proton, laser beam and plasma;
- **Coordinate instrumentation R&D studies**.
- The Instrumentation CP shall be **organized following the AWAKE project management plan and reports to the AWAKE Project Leader.**

Short-term Goals

- Definition and preparation of the beam instrumentation for AWAKE Run 2.

Long-term Goals

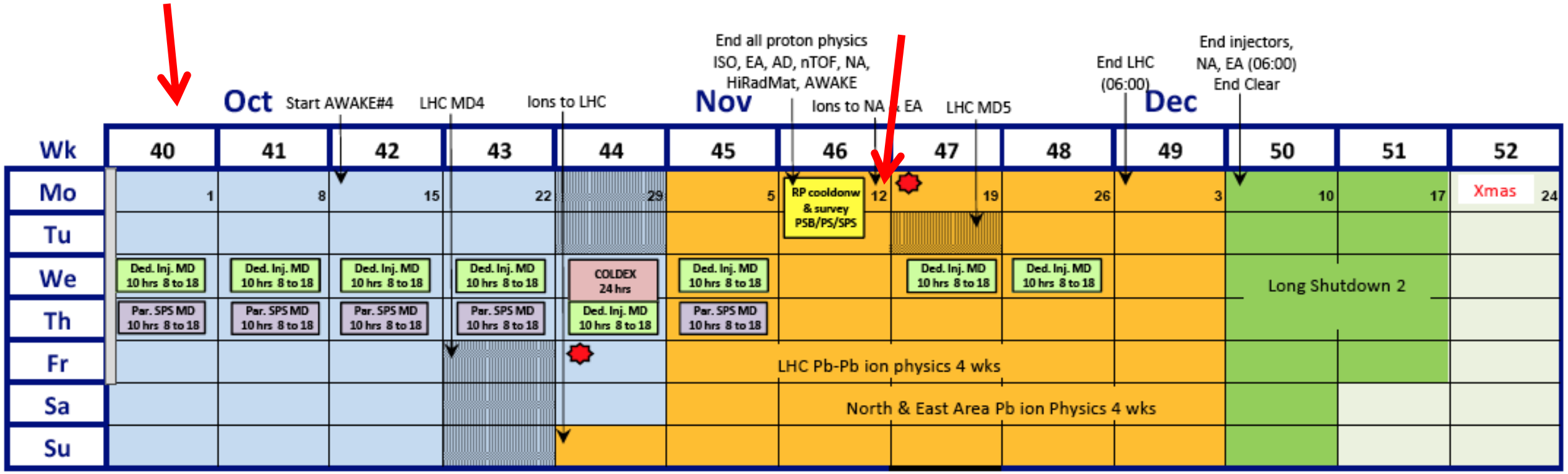
- Development of standard beam instrumentation for proton-based plasma acceleration.

➔ **Beam instrumentation not only part of 'standard' beam-lines, but also key of the AWAKE experiment itself!**
➔ **Strengthen the integration of the BI team in the experiment.**

2018 AWAKE Schedule

→ 3 more weeks to prepare for AWAKE #4

12 November 2018:
End of all proton physics!

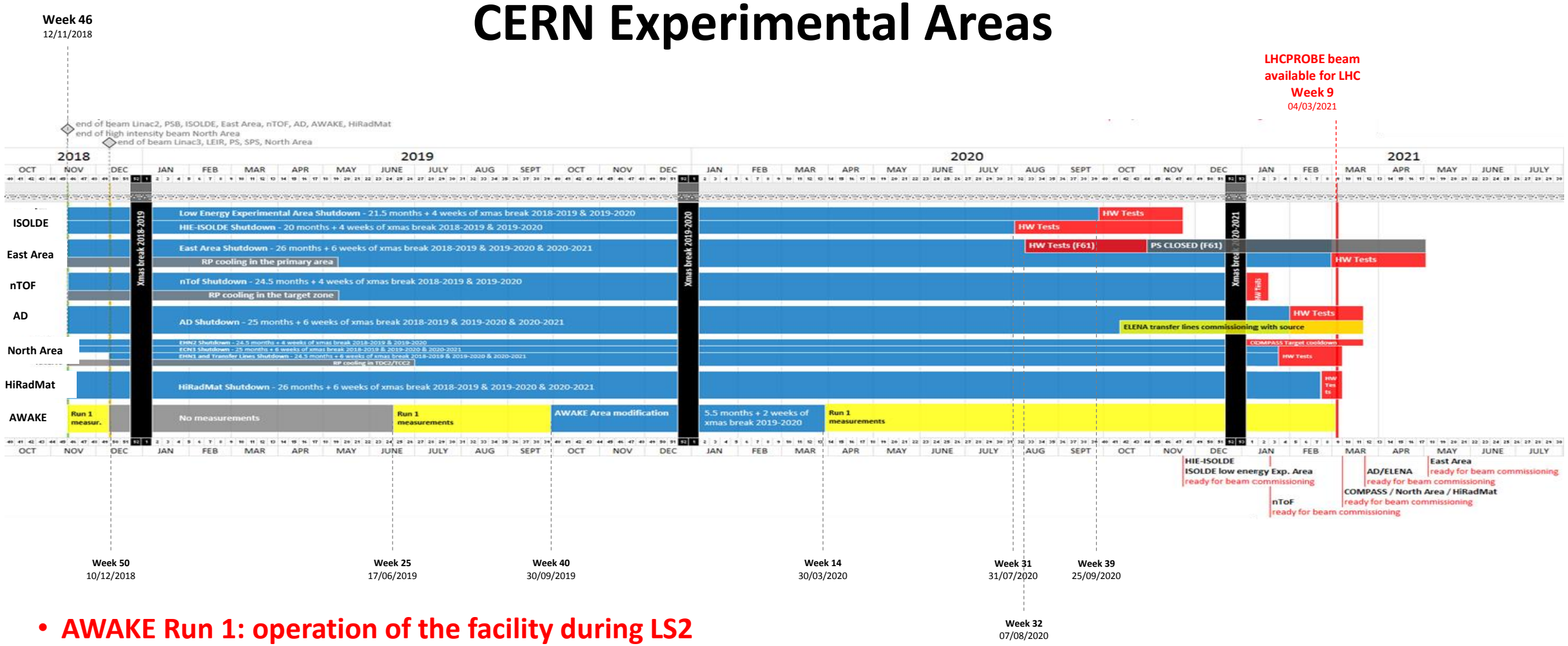


AWAKE #4

AWAKE laser measurements

Master Schedule of the Long Shutdown 2 (2019-2020)

CERN Experimental Areas



- **AWAKE Run 1: operation of the facility during LS2**
- **AWAKE Run 2: need Cost and Schedule Review + approval before any modifications works can start.**
- **➔ Studies for Run 2 already now!**

Proposed AWAKE LS2 planning

BE-CO (control systems)	No controls		Controls only if LINAC4 test extension		
BE-ICS (access system)	No access system				
EN-EL (electrical infrastructure)	EN-EL infrastructure operational. Some works will cause power cuts to AWAKE				
EN-CV (cooling&ventilation)		SPS loop unavailable			
EN-HE (transport)	Limited availability		Best period for dismantling (+5m)	Limited availability	

Proposed AWAKE LS2 planning	Run with protons	No measurements	Run 1 Measurements	**Possible area modifications**	Run 1 measurements	Run with protons

Note: Only Run 1 compensatory measurements included → Run 2 design and modification not included here!!

Timeline

- Until End 2018:
  - Run 1 data taking
  - Run 1 data analysis
  - Run 2 design studies
- LS2:
  - Run 1: operation of AWAKE facility June-Sept 2019 and > April 2020 for compensatory measurements. Data analysis.
  - Run 2 preparation: first for design, once approved modify, upgrade the experiment.
  - For approval of Run 2: prepare Cost and Schedule Review in 2019
- 2021
  - Start Run 2 operation

➔ important to start beam instrumentation studies now!