PL Report

Status

- Looking back we really have achieved a lot!
  - module production almost finished
  - L1 ladders are in hand (few more to come)
  - BEAST II set-up installed, all 4 phase 2 modules operational
  - PXD DAQ running stably with CDAQ, so far only at 12kHz
  - SC, interlock, RC, DQM almost there
  - IBBelle incl. services (dock box, heater etc.) operating routinely
  - dry volume working as expected
  - QCS installed and vacuum systems connected
- None of this was coming for free
  - huge step from working in controlled environment of lab / test beam to the real experiment far away from Europe
  - constant struggle with unforeseen problems, missing or failing components, difficult working environment …
- Above achievements were only possible thanks to huge and tireless effort in particular from people on site: THANKS A LOT!

Belle II Commissioning Group (BCG)

SuperKEKB/Belle II Liaison Group

Belle II Commissioning Group (BCG) Members as of Jan 7, 2018

Carlos Marinas (Bonn University, DRC from Feb 2018)

Congratulations to Carlos !

Shoji Uno (KEK, RC->April 2018)
Ichiro Adachi (KEK, RC from April 2018)
Katsuro Nakamura (KEK)
Hiroyuki Nakayama (KEK, BEAST II)

Philip Bambade (LAL Orsay)
Thomas Browder (University of Hawai'i)
Thomas Hauth (Karlsruhe University)
Kunxian Huang (National Taiwan University)
Sen Jia (Beihang University/KEK)
Livio Lancieri (Trieste)
Chira La Licata (Trieste)
Zachary Liptak (University of Hawai'i)
Kenkichi Miyabayashi (Nara Woman's University)
Antonio Paladino (IPMU/Pisa)
Steve Robertson (McGill University)
Jeffrey Schueler (University of Hawai'i)
Hendrik Windel (MPI, Munich)
Boqun Wang (Cincinnati University)
Laura Zani (Pisa)

+ more from KEK or Japanese universities ??

1st SVD Half Shell Completed !

- Despite many unexpected problems SVD assembly is on track !
- SuperKEKB: So far only small delay in IR reconstruction by 2 weeks
- KEK FY18 budget reduced, but OK for phase 3 operation in Feb/Mar 2019
- PXD delivery to KEK will is or will soon be on the critical path
  - have to respond this week if we are still on track …

Executive Summary Ladder Production

Laci

Ladder status PXD (as of 21.01.2018)

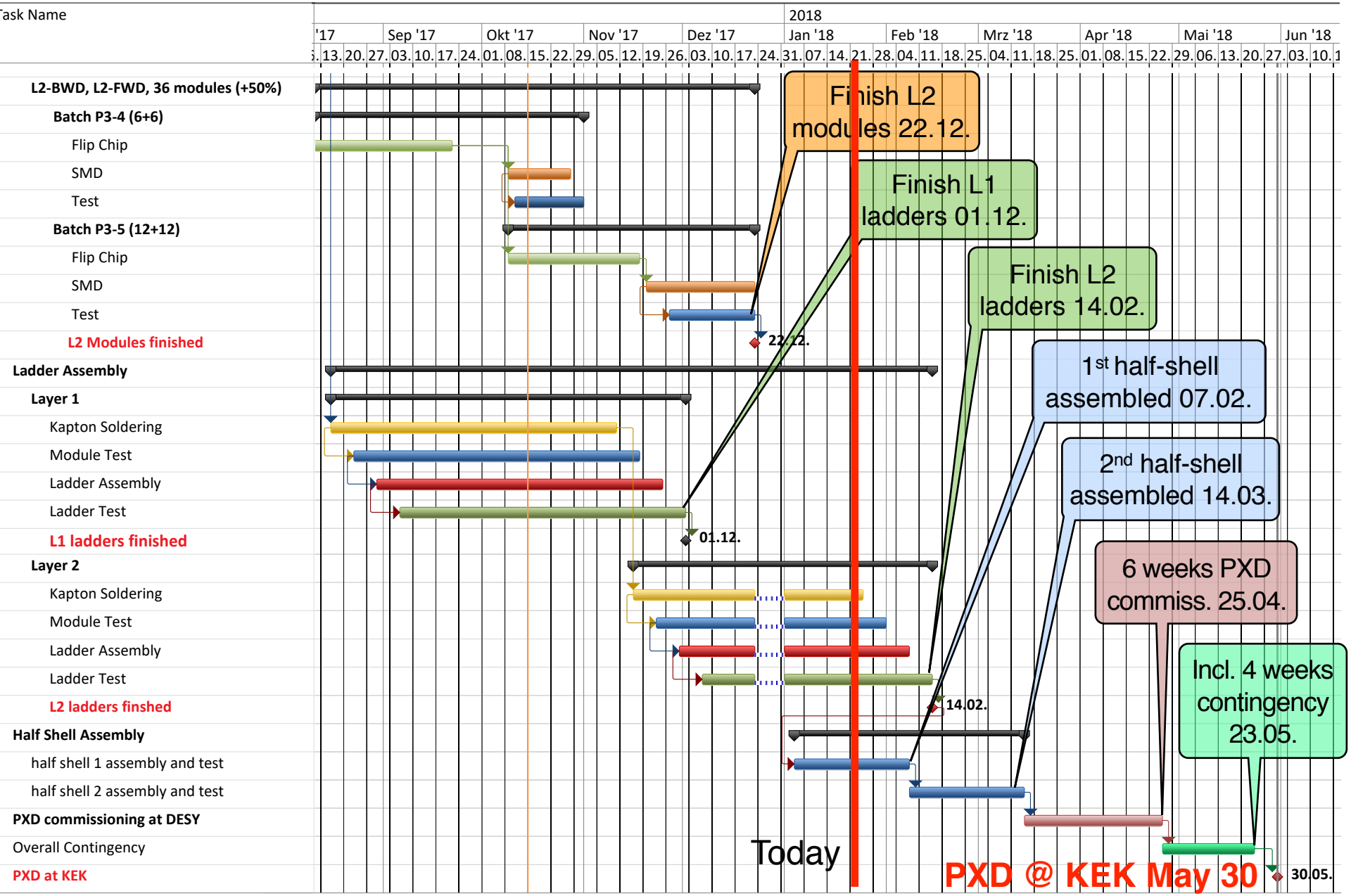
- L1 (need 8)
  - 6 a-grade ladders finished, 2 of which still to be tested (sanity check)
  - 1 b-grade ladder finished (16/768 noisy rows)
  - 1 c-grade ladder (bwd half-ladder with ~30% dead pixels)
  - Production of 2 additional ladders (replacement of c-grade plus spare) to be finished mid February

- L2 (need 12)
  - Five module pairs available (kapton attached), continue testing at a rate of 4 modules/week
  - Assembly of L2 ladders about to start at a rate of 2 ladders/week
  - Expect to be finished (12+2 ladders) in about 8 weeks (~ end March)

Open Issues (incomplete List)

- Agree and implement final and safe procedures for module operation
  - Finally enter routine mass testing mode (MPP, GOE, BN, HLL)
- Services
  - Dockbox PCBs (qualification at TUM, then start mass production)
  - Patch panel cables (final design ready, production time critical)
  - SCBs (ready to go for parylene coating, verify surface quality)
  - Power supplies, OVP boards, 2nd set of outer cables, …
- Mechanics
  - Tools for ladder assembly and half-shell commissioning (qualify tools and procedures with dummies)
  - Final cable routing in warm dry volume (exercise w/ dummy?)
  - Design of patch panel cable cage (don`t have a solution on CAD yet)
  - …

PXD Production Schedule Details (status Oct BPAC)



PXD Mounting and Test Schedule

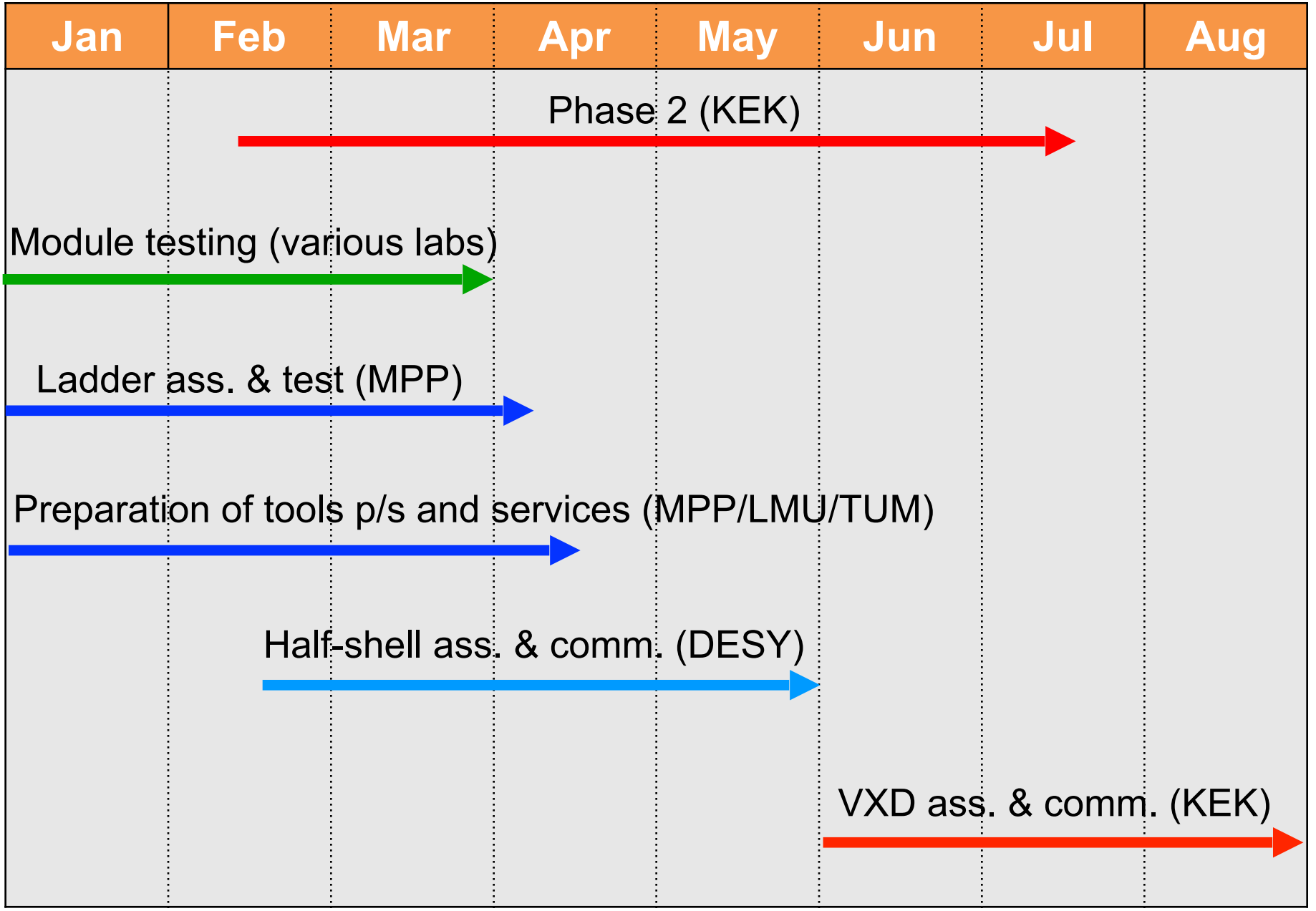
Activity	Days
Diamonds. Installation and tests	2
Survey beam pipe and PXD at arrival. Rotation beam pipe	2
Cabling clean room to back end	2
Dock boxes (mechanical installation, DockBoxPCB, cabling)	5
(First) Half shell installation	5
Connection patch panels	2
CO2, nitrogen and closing the volume for testing	2
Test 20 modules (half shell)	7
Disconnection patch panels and CO2, opening the volume and rotation	2
(Second) Half shell installation	5
Connection patch panels	2
CO2, nitrogen and closing the volume for testing	2
Test 20 modules (half shell)	7
Disconnection patch panels and CO2, opening the volume and rotation	2
Total	47

Installation of VXD Outer Services

Activity	Days	Work days	weeks
mount dockboxes (FWD BWD in parallel)	2	2	
PXD Power cables BWD (40 cables)	4	4	
SVD power BWD (60 cables)	5	5	
PXD Power cables FWD (40 cables)	4		
SVD power FWD (36 cables)	3		
PXD signal cables BWD (20 + 8 + 8)	4	4	
SVD signal cables BWD (111 cables)	6	6	
PXD signal cables FWD (20 + 8 + 8)	4		
SVD signal cables FWD (61 cables)	4		
VXD montor cables BWD	5	5	
VXD monitor cables FWD	2	2	
sum (including 1 week of scaffolding)		28	6

Try to parallelize work as much as possible. Type of cables and tight space requirements on CDC end plate and in ECL slots dictate installation sequence:

PXD power –> SVD power –> PXD signal –> SVD signal

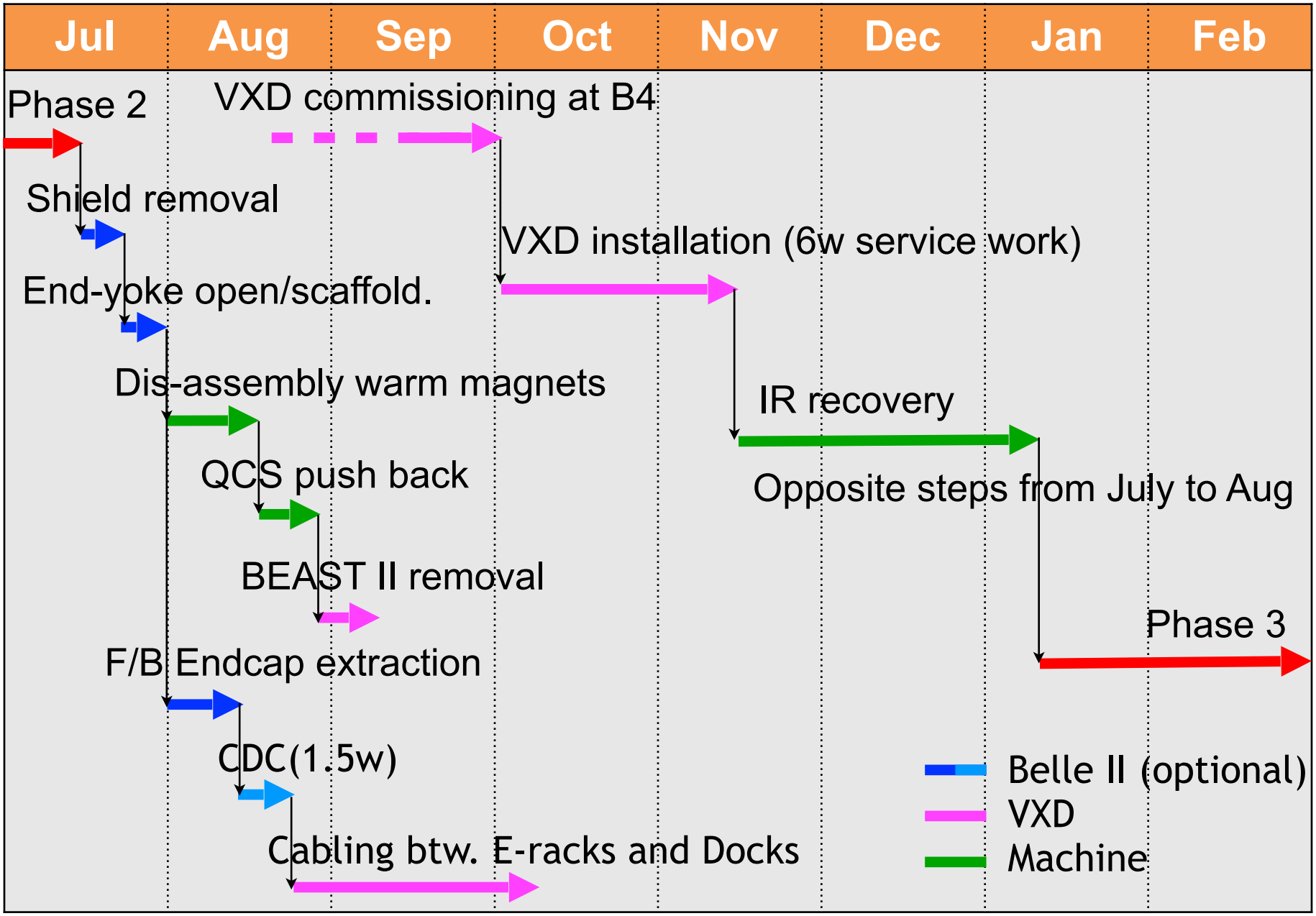


Only have ~10 experts with sufficient knowhow to operate modules !

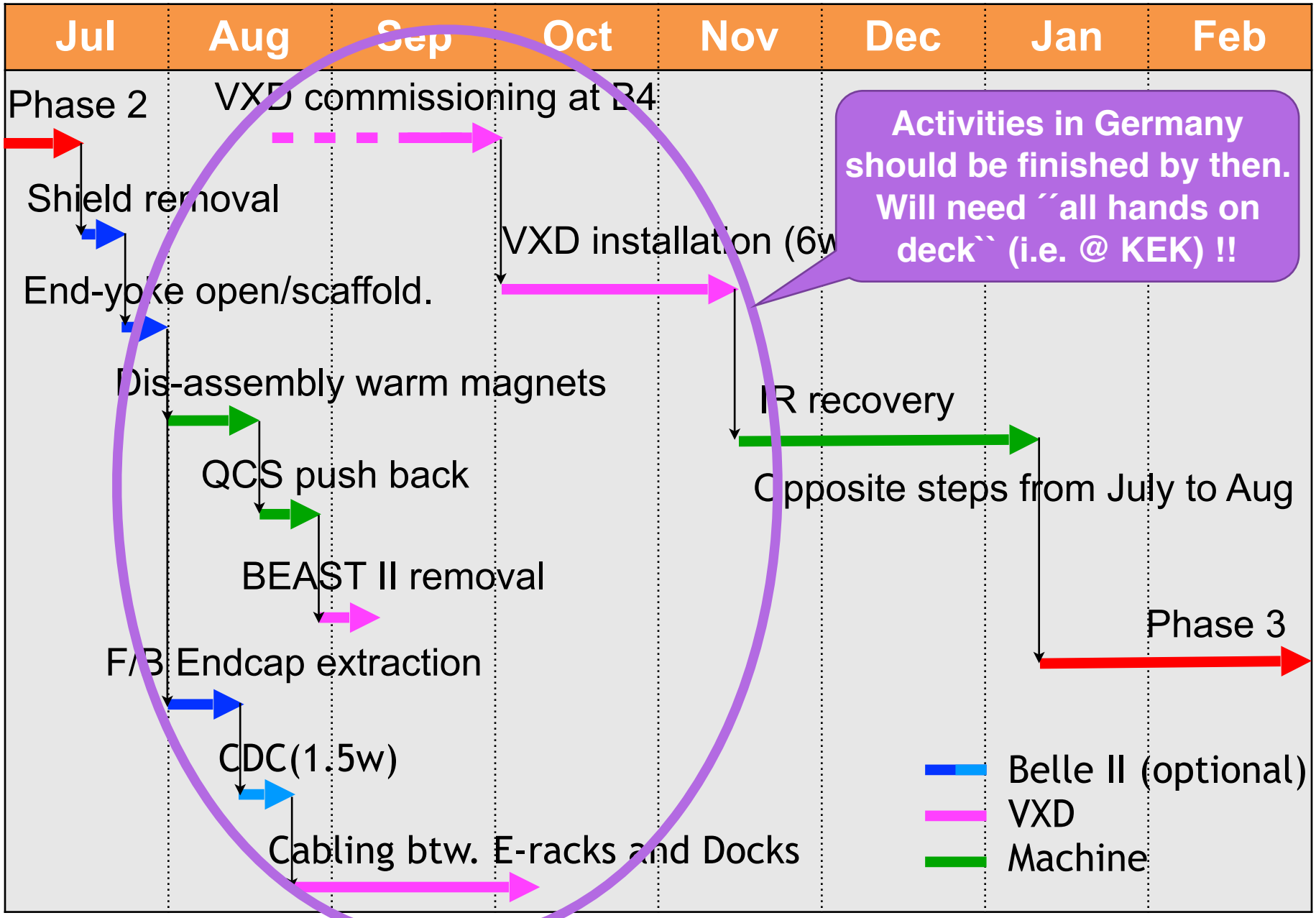
Presence at KEK

	08.01.18	15.01.18	22.01.18	29.01.18	05.02.18	12.02.18	19.02.18	26.02.18	05.03.18	12.03.18	19.03.18	26.03.18	02.04.18	09.04.18	16.04.18	23.04.18	30.04.18	07.05.18	14.05.18	21.05.18	28.05.18	04
Date (Calendar Week)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
PXD																						
Carlos Marinas					6.2.18			26.2.18														
Botho Paschen				4.2.18						15.3.18												
Florian Lütticke					8.2.18					15.3.18												
Christian Wessel				4.2.18						15.3.18												
Igor Konorov				3.2.18		18.2.18																
Stefan Huber		14.-21.1.																				
Thomas Gessler	05.01.							27.02.18														
Klemens Lautenbach				1.2.18										13.4.18								
Dennis Getzkow										14.03.18						27.04.18						
Soeren Lange																						
Simon Reiter																		8.5.18				
Benjamin Schwenker				5.2.18				26.2.18														
Uwe Gebauer				5.2.18				03.03.18														
Harrison Schreeck				5.2.18				03.03.18														
Michael Ritzert							20.2.18	2.3.18														
Bruno Deschamps				3.2.18				3.3.18														
FANGS																						
Patrick Ahlburg				3.2.18				3.3.18														
CLAWS																						
Hendrik Windel				30.01.18													01.05.18					

https://docs.google.com/spreadsheets/d/1TQ9TmmOue7EwLPWOfY9OaHlh1lgIMWVTqtZVfCTo6uw/edit#gid=1670358501



With a second set of outer cables installation can partly run in parallel with VXD commissioning => Target date for **phase3 start in Jan 2019** can still be met



With a second set of outer cables installation can partly run in parallel with VXD commissioning => Target date for **phase3 start in Jan 2019** can still be met

BPAC Focused Review Recommendations

- PXD
  - … obtain solid confirmation on root cause of **module failures** …
  - … identify **core team** of people for ladder installation …
  - … continue the **integration tests** of the readout-chains …
  - … prepare and commission the **slow-control systems** including documentation …
  - … write **final beam test report** …

- VXD Installation and Commissioning, Phase 2 –> 3 Transition
  - … include **resources** (people, skills, equipment, et cetera) for each schedule task and **contingency** …
  - … develop **self-perpetuating group** for each major detector and software component …
  - … show **implementation plan** in Feb BPAC …