

# European XFEL Schedule and Integration Planning

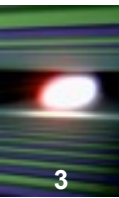
Tobias Haas  
Photon System Coordinator  
8 Dec 2015

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# PSPO Team

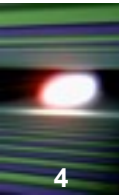


# Planning Tasks of PSPO



- Project integration planning and monitoring for the photon systems of the European XFEL
  - Develop installation schedules for the instruments
    - *Instrument Installation plans*
  - Develop integration schedule for civil construction and infrastructure
    - *Infrastructure Master Plan*
- Integrate the schedules of supporting WPs, e.g.
  - Electronics, IT, software, lasers, detectors, sample environment
    - *Integrated Master plan*
- Support planning of other complex integration tasks
  - e. g. *Game plans* for instrument electronics

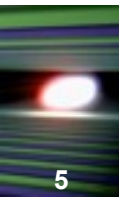
# Other Tasks of PSPO



- Risk Management
- Technical Coordination

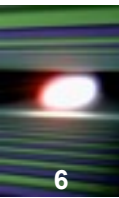


# Planning Process: PSPO side



- PSPO (Photon System Project Office)
  - Defines the driving mile stones in the *Infrastructure Master Plan*
  - Hosts regular (mostly weekly) meetings with the Instruments
  - Maintains individual *Instrument Installation plans* in a central repository
  - Combines *Infrastructure Master Plan*, *Instrument Installation Plans* and key milestones of supporting WPs into the *Integrated Master Plan*
  - Coordinates and resolves conflicts
  - Escalates critical topics to the management
    - ➔ Head of PSPO regularly reports to the MB

# Planning Process: Instrument and WP side



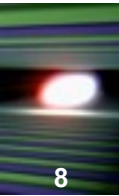
## ■ Instruments & WPs

- Are responsible to provide all necessary information for their individual installation plans and they have to buy into the plans
- Provide one person responsible for the planning
  - ideally an engineer
- Report regularly in the Technical Coordination/XHEXP1 meetings
- Provide key outgoing mile stones to the overall project plan



## Contacts on the Instrument and WP Side

- FXE: W. Gawelda (Instrument Scientist)
  - Being taken over by M. Knoll (Engineer)
- SPB/SFX: S. Readman (Engineer/Planner from Diamond)
  - Also Z. Ansari (Project Planner)
- SQS: M. Meyer (Leading Scientist)
- SCS: A. Scherz (Leading Scientist)
- MID: A. Schmidt (Engineer)
- HED: A. Schmidt (Engineer)
- Laser: G. Palmer (Laser Scientist)
- CAS & AE: B. Heisen and P. Gessler (Group Leaders)
  - Newly hired Project Planning Assistant
- Detectors: M. Kuster (Group Leader)



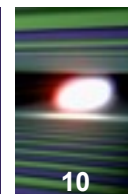
- Infrastructure Master plan:
  - Implemented, maintained and regularly updated
- Instrument Installation plans
  - Well developed
    - Interfaces to lasers, electronics, cabling are implemented
  - Fine tuning is required as project progresses
  - Interfacing to some supporting WPs still open
    - e. g. Sample Environment

# Key Project Milestones



Milestone	Date	Comment
Northern Tunnels (SASE1/3) closed	31 Dec '15	Expected: 30 Apr '16
Linac Tunnel Closed	30 Jun '16	Risk of up to 3 months delay
First Lasing SASE1	31 Dec '16	Target date unchanged
First Lasing SASE3	15 Feb '17	Target date unchanged
First Lasting SASE2	30 Apr '17	Target date unchanged
SASE1 User Operation	30 Apr '17	Target date unchanged
SASE3/2 User Operation	31 May/31 July '17	5/7 months delayed

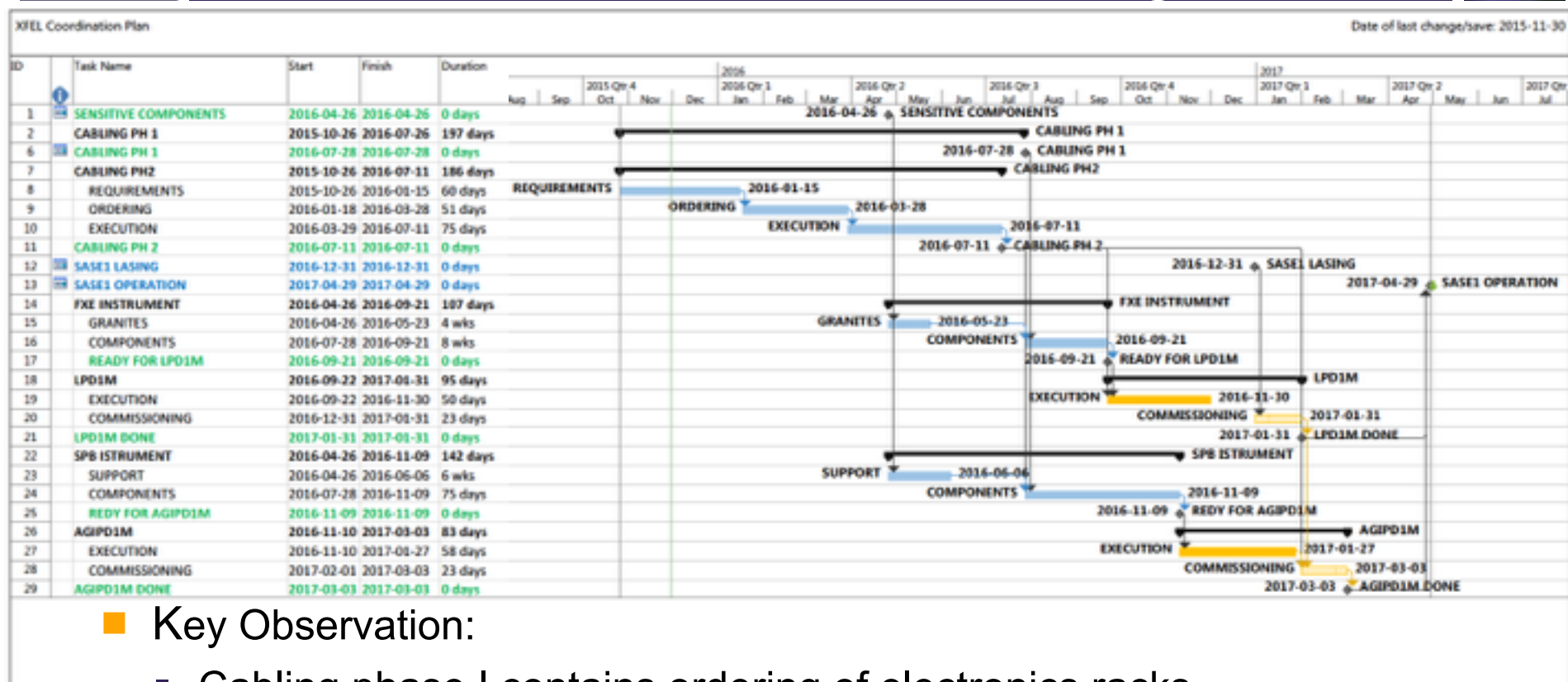
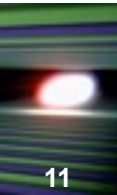
# Infrastructure Milestones



	A	B	C
	Milestone Name	Date	Comment
1	<b>SASE1</b>		
2	HUTCH PRR	18/03/14	done
3	SASE1 Hutch construction start	14/04/15	done
4	FXE BIG ITEMS	03/08/15	done
5	SPB/SFX BIG ITEMS	13/07/15	done
6	HUTCH CONSTRUCTION COMPLETE (INSTRUMENT INSTALLATION POSSIBLE)	09/10/15	90% done, Infra started
7	INFRASTRUCTURE PRR	25/02/15	done
8	ALL HUTCHES & BASIC INFRASTRUCTURE DONE (INSTALLATION OF SENSITIVE COMPONENTS POSSIBLE)	26/04/16	ok
9	COMPLETE HUTCHES AND INFRASTRUCTURE DONE	19/07/16	ok
10	<b>SASE3</b>		
11	HUTCH PRR	17/03/15	done
12	SASE3 Hutch construction start	05/08/15	done
13	HUTCH CONSTRUCTION COMPLETE (INSTRUMENT INSTALLATION POSSIBLE)	11/03/16	under tension, but still ok
14	INFRASTRUCTURE PRR	24/09/15	done
15	ALL HUTCHES & BASIC INFRASTRUCTURE DONE (INSTALLATION OF SENSITIVE COMPONENTS POSSIBLE)	28/09/16	under tension, but still ok
16	COMPLETE HUTCHES AND INFRASTRUCTURE DONE	23/11/16	ok
17	<b>SASE2</b>		
18	HUTCH PRR	06/11/15	done
19	SASE2 Hutch construction start	30/03/16	ok
20	HUTCH CONSTRUCTION COMPLETE (INSTRUMENT INSTALLATION POSSIBLE)	29/09/16	ok
21	INFRASTRUCTURE PRR	18/01/16	ok
22	ALL HUTCHES & BASIC INFRASTRUCTURE DONE (INSTALLATION OF SENSITIVE COMPONENTS POSSIBLE)	19/01/17	ok
23	COMPLETE HUTCHES AND INFRASTRUCTURE DONE	19/03/17	ok
24			



# Instrument, Electronics, Detector Integration



## Key Observation:

- Cabling phase I contains ordering of electronics racks
- Cabling is on the critical path
  - ➔ Collect cabling/control requirements by mid Jan
- Cabling phase II will needs to be done in several stages in order not to be delayed by lack of information

# SPB Start of Hutch Construction (July)





# SPB Hutch (15 July)



# Infrastructure Supports SASE1 (17 Jul)





# SPB and FXE Doors (1 Sep)



# FXE Robot Tower and crane (2 Sep)





# SASE1 Hutches Painted (11 Nov)





# SASE1: Rack and control rooms (2 Dec)





# SASE1 Infrastructure Installation (2 Dec)



# SASE3: Start of Laser Hutch Construction



24.09.2015 - 14:02



# SASE3 Laser Hutches: Molds removed (11 Nov)



## Next Steps



- Finalise and tender Cabling and racks for SASE1
- Install the SASE1 infrastructure (Electricity, air, media...)
- Finish building SASE3 hutches
- Start installing SASE3 infrastructure (tenders are out)
- Start building SASE2 hutches (tenders are out)
- Finalise SASE2 infrastructure planning
- Optimise the planning of interfaces between infrastructure, instruments, cabling, electronics, detectors
  - More resources are needed and are coming:
    - ➔ PSPO has hired another person together with AE and CAS:
      - Project Planning assistant will start in Jan



# XDAC Questions

	A	B	C
1	<b>No.</b>	<b>Recommendation</b>	<b>Initiative/Actors</b>
2	<b>Scheduling</b>		
3	XDAC18.1	The next DAC meetings should continue to include presentations on the overall schedule and how the detector consortia schedules fit into this schedule.	WP75, PSPO

- See this presentation

4	XDAC18.2	PSPO should include the most important external milestones into its planning. These should at least include the milestones for the tunnel installation as well as the milestones of the detector consortia, since both have a large impact on the realities of the scheduling of the instrument installations.	PSPO
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- See this presentation

5	XDAC18.3	The internally used XFEL schedule needs to take contingencies into account, in order to make the long-term plan more stable against problems within individual work packages or detector consortia which are guaranteed to happen, and to allow alternative plans on how to proceed to be formulated early on.	PSPO, MB
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- As per management decision we include no contingencies

6	XDAC18.4	A common and consistent system for communicating schedule and milestone changes to the PSPO would strongly simplify scheduling and help all parties to have a common view of the progress in the project.	PSPO, MB
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- This happens in regular (mostly weekly) meetings. Results are regularly reviewed